

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

KENEXA BRASSRING, INC.,

Plaintiff

v.

VURV TECHNOLOGY, INC.,

Defendant.

C. A. No.: \_\_\_\_\_

Jury Trial Demanded

**COMPLAINT**

**The Parties**

1. Plaintiff, Kenexa BrassRing, Inc. (“Kenexa”), is a Delaware corporation having its corporate headquarters at 650 East Swedesford Road, Wayne, Pennsylvania 19087.

2. Defendant Vurv Technology, Inc. (“Vurv”) is a Delaware corporation having a principal place of business at 7660 Centurion Parkway, Suite 100, Jacksonville, Florida 32256.

**Jurisdiction**

3. This action arises under the patent laws of the United States, Title 35 of the United States Code. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§1331 and 1338(a).

4. As alleged herein, Vurv has infringed (literally and/or by equivalents), and is continuing to infringe, Kenexa’s patents by making, using, importing, selling, and/or offering to sell products covered by one or more patent claims – or by performing any method claimed therein – within the United States, and/or by contributing to or inducing such infringement.

5. This Court has personal jurisdiction over Vurv, which is a Delaware corporation.

**Count I**  
**Infringement of U.S. Patent No. 5,999,939**

6. Kenexa repeats and realleges the foregoing paragraphs.

7. Kenexa is the owner of United States Patent No. 5,999,939 (the "'939 patent") and has the right to sue on the '939 patent. A copy of the '939 patent is attached as Exhibit A.

8. Vurv has infringed (literally and/or by equivalents), and is continuing to infringe, the '939 patent by making, using, importing, selling, and/or offering to sell products covered by one or more of the '939 patent claims – or by performing any method claimed therein – within the United States, and/or by contributing to or inducing such infringement.

9. Vurv's infringement of the '939 patent is and has been willful, has caused and will continue to cause Kenexa to suffer substantial damages, and has caused and will continue to cause Kenexa to suffer irreparable harm for which there is no adequate remedy at law.

**Count II**  
**Infringement of U.S. Patent No. 6,996,561**

10. Kenexa repeats and realleges the foregoing paragraphs.

11. Kenexa is the owner of United States Patent No. 6,996,561 (the "'561 patent") and has the right to sue on the '561 patent. A copy of the '561 patent is attached as Exhibit B.

12. Vurv has infringed (literally and/or by equivalents), and is continuing to infringe, the '561 patent by making, using, importing, selling, and/or offering to sell products covered by one or more of the '561 patent claims – or by performing any method claimed therein – within the United States, and/or by contributing to or inducing such infringement.

13. Vurv's infringement of the '561 patent is and has been willful, has caused and will continue to cause Kenexa to suffer substantial damages, and has caused and will continue to cause Kenexa to suffer irreparable harm for which there is no adequate remedy at law.

**PRAYER**

WHEREFORE, Kenexa requests that this Court:

1. Enter a permanent injunction enjoining Vurv and its affiliates, subsidiaries, officers, directors, employees, agents, representatives, licensees, successors, assigns, and all those acting for any of them or on their behalf, or acting in concert with them, from further infringement of any and all of the '939 and '561 patents;
2. award Kenexa compensatory damages, costs, and interest for patent infringement;
3. award Kenexa treble damages for the willful infringement of the '939 and '561 patents;
4. award Kenexa its reasonable attorneys' fees under 35 U.S.C. §285; and
5. award Kenexa such other relief as the Court deems just and proper.

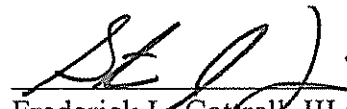
**JURY DEMAND**

Kenexa demands a trial by jury on all issues so triable.

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Dated: May 9, 2008

  
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*Attorneys for Plaintiff*

# EXHIBIT A



US00599939A

# United States Patent [19]

de Hilster et al.

[11] Patent Number: **5,999,939**  
 [45] Date of Patent: **Dec. 7, 1999**

- [54] **SYSTEM AND METHOD FOR DISPLAYING AND ENTERING INTERACTIVELY MODIFIED STREAM DATA INTO A STRUCTURED FORM**
- [75] Inventors: David Scott de Hilster, Long Beach;  
 Alan George Porter, Huntington Beach; John Reese, Los Angeles, all of Calif
- [73] Assignee: Interactive Search, Inc., Los Angeles, Calif.

5,197,004 3/1993 Sobotka et al. 705/8  
 5,721,827 2/1998 Logan et al. 709/217  
 5,740,425 4/1998 Povilus 707/100  
 5,806,057 9/1997 Gormley et al. 707/1  
 5,809,248 9/1998 Vidovic 709/219  
 5,832,496 11/1998 Anand et al. 707/102  
 5,855,007 12/1998 Jovicic et al. 705/14  
 5,907,837 5/1999 Ferrel et al. 707/3

Primary Examiner—Wayne Amsbury  
 Attorney, Agent, or Firm—Freilich, Hombaker & Rosen

## [57] ABSTRACT

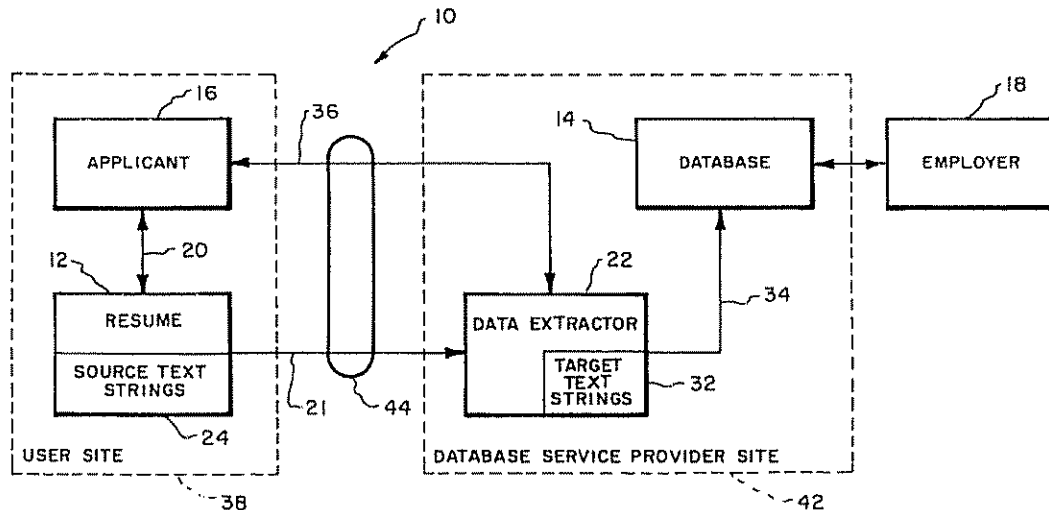
A system and method for facilitating the accurate entry of information into a highly structured database by initially extracting information from a plurality of nonuniformly formatted source data streams, e.g., documents/files, and subsequent interactions with users before storing the accepted and/or modified information into the database. Embodiments of the present invention provide an interactive path for each user (e.g., the author of the source document/file) to interactively modify the extracted data, e.g., according to the source document/file. Preferably, this interactive path is provided via the Internet and the extracted information can be modified by editing and/or selectively copying portions of the source documents/files to supplement and/or modify the extracted information.

- [21] Appl No : 09/019,948  
 [22] Filed: Feb. 6, 1998
- Related U.S. Application Data
- [60] Provisional application No. 60/068,404, Dec. 21, 1997
- [51] Int. Cl.<sup>6</sup> G06F 17/30  
 [52] U.S. Cl. 707/102; 707/104; 705/28  
 [58] Field of Search 707/102, 104; 705/28

- [56] References Cited
- U.S. PATENT DOCUMENTS

5,164,899 11/1992 Sobotka et al. 705/9

20 Claims, 10 Drawing Sheets



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Dec. 7, 1999

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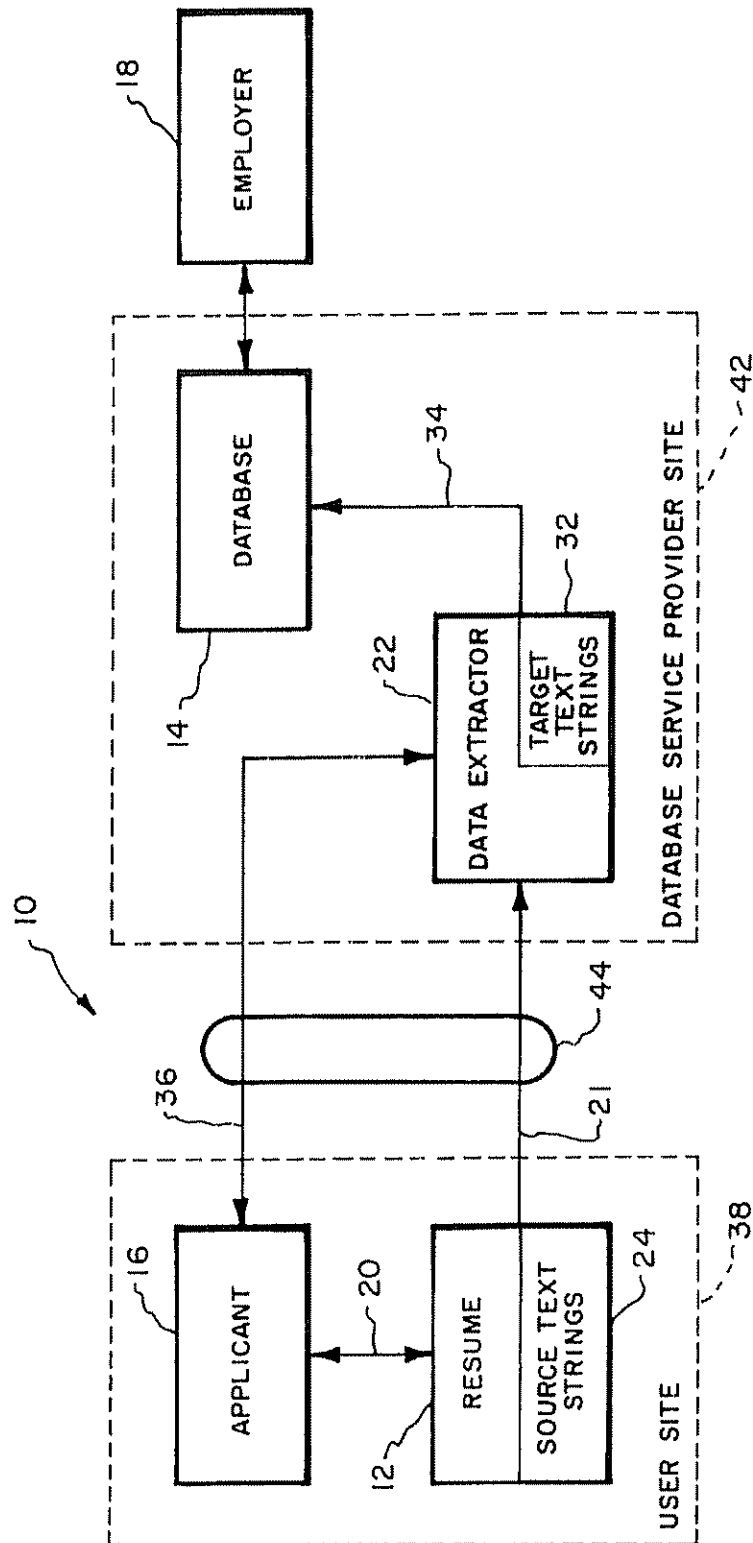


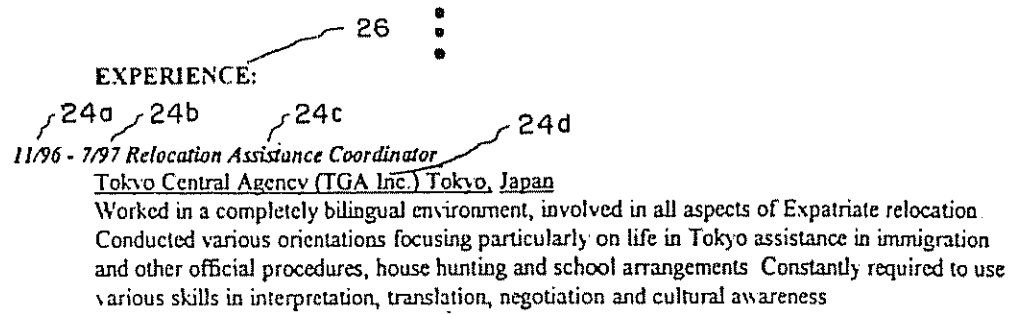
Fig. 1.

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**Fig. 2.**

28a	28b	...	28j	28k	28l	28m	...	14
								30a
								30b
								30c
								...
								30q

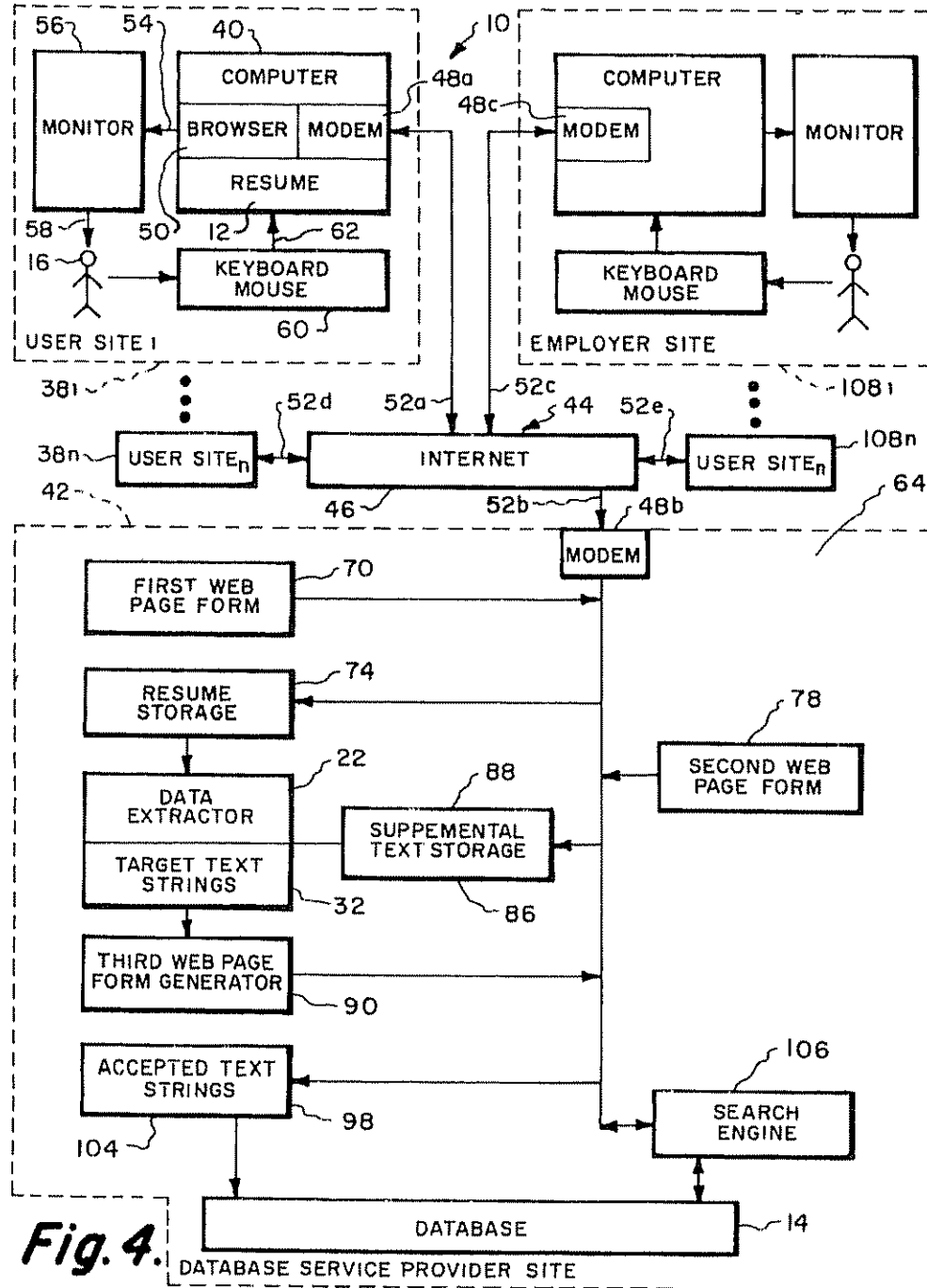
**Fig. 3.**

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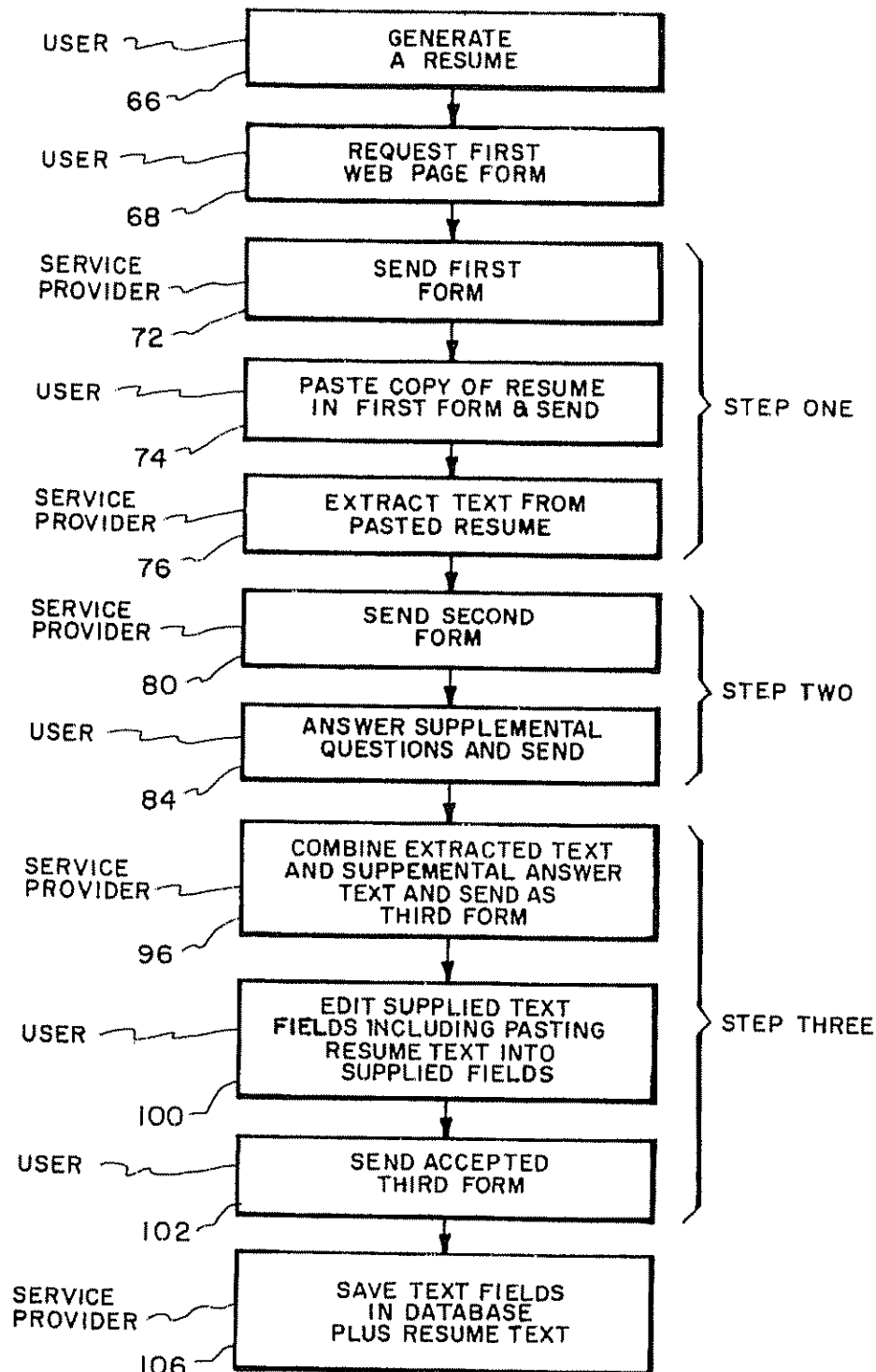


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**Fig. 5.**

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**JobEngine**

**Post Resume**

Help?

This page is for posting a new resume. Click here to [Change](#) or [Remove](#) a previously posted resume

**Instructions:**

There are 3 steps to post your resume:

- Paste in your resume.
- Answer a few questions.
- Review our work to ensure that the information in your resume is correct. Then enroll.

And only a few rules:

- Items labelled in Red are Required.
- Items labelled in Black are Optional, but we strongly suggest that you take a few minutes to answer the questions. Your answers provide information, not typically found in a resume, that employers want to know before they contact you.

Don't worry -- nothing will be saved in the database without your review and approval.

**STEP ONE -- PASTE IN YOUR RESUME**

Copy your resume from a text file on your computer and paste into the text block below.

Be sure your contact information (name, address, phone number(s) and email address) appears only at the top of the resume, and that nothing in the body of your resume (like your current job description) identifies you. This protects your privacy. This step is Required.

Resume:

Arthur Smith  
 1234 Main Street  
 Sausalito, California 94965  
 Tel: 415-555-5432 Fax: 415-555-5543  
 E-mail: asmith@isp.com

EXPERIENCE:

11/96 - 7/97 Relocation Assistance Coordinator  
 Tokyo Central Agency (TGA Inc.) Tokyo, Japan

Ready for Step 2 | Clear

**Fig. 6A.**

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**jobEngine**

**Post Resume**

[Help?](#)

## STEP TWO -- ANSWER A FEW QUESTIONS

There's some additional information, not typically in your resume, that is very helpful to employers. Most of these questions are optional. However, you should try to answer as many as possible. It will only take a few minutes... promise.

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### Job Goals

Functional Specialties

GENERAL MANAGEMENT  
Senior Management (CEO Pres, COO, GM)  
Branch & Regional Management  
INFORMATION TECHNOLOGY MANAGEMENT

Type of Position

Full Time ☒ 82b

Expected Compensation

open ☒ 82c

Travel

Moderate (25%-50%) ☒ 82d

Relocation

Yes - I can relocate to: ☒ Areas most anywhere

### About You

Citizenship

U.S. Citizen ☒ 82g

Current Clearances

No ☒ 82h

### Enrollment

Type

- ☒ Open - Your full resume, including contact information, will be available to employers
- ☐ Confidential - Your full resume, except your contact information, will be available to employers. Those interested in contacting you can do so via email forwarded to you confidentially
- ☐ Private - No employer can see your resume. It is retained in jobEngine's Resume Center as a convenience to you when applying to jobs

Ready for Step 3? ☒ Have Over ☐

Comments, questions or suggestions? Please email us at [support@jobEngine.com](mailto:support@jobEngine.com)

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**Fig. 6B.**

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**JobEngine****Post Resume**

Help?

**STEP 3 -- REVIEW INFORMATION AND ENROLL**

We know you hate to enter again what you have already put into your resume. So, we've tried first to find information we need. Please review the information carefully and correct errors. A copy of your resume included for copying and pasting as needed. This is an important step. Remember -- items labeled in Red Required.

Be sure to scroll through all the data in this window, make all needed corrections, select a Resume Access Code and password, and then Post your resume.

Contact Information (confidential)

Name

Address

City, State Zip

Country

Phone Home  Work  Fax

Email

Web Page

**Experience**

Your three most recent positions. The order of jobs is not important. For each job entered, information is in each of the four columns with red labels

Start Date	End Date	Company	Title
11/96	7/97	TGA Inc.	Relocation Assistan
3/95	10/96	NCR English Language Inst	English Teacher
8/94	2/95	Los Angeles	Sales Associate

Year First  
Employed

**Education**

Your three most recent degrees. For each degree entered, information is required in each of the two columns with red labels. Information in the other columns is helpful.

Year	Degree	School	Major
March, 1	Bachelor of Ar	University of California	Speech Communications

**Fig. 6C. (PART 1 OF 3)**

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**Job Goals**

Functional Specialties

Senior Management (CEO Pres, COO, GM) Branch & Regional Management INFORMATION TECHNOLOGY MANAGEMENT
--

Type of Position ☒ Full TimeExpected Compensation Travel ☒ Moderate (25%-50%)Relocation ☒ Yes - I can relocate to: **About You**Citizenship ☒ U.S. CitizenCurrent Clearances ☒ No**Please Help Us**

We are curious about how you learned about jobEngine. Please help us by selecting one of the choices

**Access Keys**

Select an access code and password for future access to your resume.

Resume Access Code Password Password (again) **Posting**

Neither Ziff-Davis nor I-Search is responsible for the verification of data provided and shall not be liable for any errors, factual, transcript otherwise, contained in the information posted. Further, we assume no obligation with respect to the compliance of the information or a process with applicable governmental laws, rules and regulations of any kind regarding employment practices. With respect to confidentiality, Ziff-Davis and I-Search will use reasonable measures to delete the applicant's identity, but shall not be responsible for unintentional disclosure of software malfunctions or exposures of applicant through descriptive information contained in the body of the resume.

☒ I accept the agreement, post my resume.

---

Your resume text for cutting and pasting information a  
[Back to Form](#)

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Processed by I-Search: 151-9000-5279

12'

Arthur Smith  
1234 Main Street  
Sausalito, California 94965  
Tel: 415-555-5432 Fax: 415-555-5543  
E-mail: asmith@isp.com

EXPERIENCE:

**Fig. 6C. (PART 2 OF 3)**

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11/96 - 7/97 Relocation Assistance Coordinator  
Tokyo Central Agency (TGA Inc.) Tokyo, Japan  
Worked in a completely bilingual environment, involved in all aspects of Expatriate  
Conducted various orientations focusing particularly on life in Tokyo assista  
other official procedures, house hunting and school arrangements. Constantly  
skills in interpretation, translation, negotiation and cultural awareness.

3/95 - 10/96 English Teacher  
NCR English Language Institute, Tokyo, Japan  
Neva Inter cultural Institute, Tokyo, Japan  
Experienced in all aspects of teaching English as a foreign language, includi  
T.O.E.F.I. Actively participated in recruitment of new students, student lev  
progress analysis. Voted Teacher of the Year by students and upper managemen

8/94 - 2/95 Sales Associate  
24' Nordstroms Los Angeles, CA  
Consistently ranked as highest in customer sales and satisfaction in a compet  
environment. Sharpened communicational skills and refined fashion sense gave  
privilege of an honest and bright salesperson.

5/93 - 6/94 Resort Hotel Supervisor  
Pacific Islands Club, Guam, U. S. A.  
Thrived in a resort where the primary focus was to initiate guest interaction  
department of sports, entertainment and activities. Assumed direct responsib  
sports complex, training the constant influx of new employees, inventory and  
introduction of inventive and efficient motivational techniques) and complete

EDUCATION:

Bachelor of Arts - Speech Communications  
University of California at Santa Barbara  
Graduation: March, 1993

Major Courses of Study & Interest  
Interpersonal Relations, Creative Writing, Psychology, Sociology

CERTIFICATES: National Japanese Proficiency Exam - Level 2  
INTERESTS: Travel, Japanese, Scuba Diving, Tennis

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{PAGE}

Comments, questions or suggestions? Please email us at [support@jobEngine.com](mailto:support@jobEngine.com)

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Interactive Search



**Fig. 6C. (PART 3 OF 3)**

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**Arthur Smith**

1234 Main Street  
Sausalito, California 94965  
Tel: 415-555-5432 Fax: 415-555-5543  
E-mail: asmith@isp.com

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**EXPERIENCE:**

*11/96 - 7/97 Relocation Assistance Coordinator*

Tokyo Central Agency (TGA Inc.) Tokyo, Japan

Worked in a completely bilingual environment, involved in all aspects of Expatriate relocation. Conducted various orientations focusing particularly on life in Tokyo assistance in immigration and other official procedures, house hunting and school arrangements. Constantly required to use various skills in interpretation, translation, negotiation and cultural awareness.

*3/95 - 10/96 English Teacher*

NCR English Language Institute, Tokyo, Japan

Nova Inter cultural Institute, Tokyo, Japan

Experienced in all aspects of teaching English as a foreign language, including Phonics, and T O E F L. Actively participated in recruitment of new students, student level assessment and progress analysis. Voted Teacher of the Year by students and upper management.

*8/94 - 2/95 Sales Associate*

Nordstroms, Los Angeles, CA

Consistently ranked as highest in customer sales and satisfaction in a competitive retail environment. Sharpened communicational skills and refined fashion sense gave customers the privilege of an honest and bright salesperson.

*5/93 - 6/94 Resort Hotel Supervisor*

Pacific Islands Club, Guam, U. S. A.

Thrived in a resort where the primary focus was to initiate guest interaction in the unique department of sports, entertainment and activities. Assumed direct responsibility for managing the sports complex, training the constant influx of new employees, inventory and ordering of supplies, introduction of inventive and efficient motivational techniques) and complete area maintenance.

**EDUCATION:**

Bachelor of Arts - Speech Communications

University of California at Santa Barbara

Graduation: March, 1993

Major Courses of Study & Interest

Interpersonal Relations, Creative Writing, Psychology, Sociology

CERTIFICATES: National Japanese Proficiency Exam - Level 2

INTERESTS: Travel, Japanese, Scuba Diving, Tennis

***Fig. 7.***



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# SYSTEM AND METHOD FOR DISPLAYING AND ENTERING INTERACTIVELY MODIFIED STREAM DATA INTO A STRUCTURED FORM

This application claims the benefit of U.S. Provisional Application No. 60/068,404 filed Dec. 21, 1997

## BACKGROUND OF THE INVENTION

The present invention relates to data processing systems for entering information into and accessing information from large structured databases and in particular to those systems which allow multiple independent users to enter information from nonuniformly formatted documents/files and to interact with the system to assure the accuracy of the database entries

The use of databases for storing data records which can be readily searched is well known. A typical application of large structured databases would be a system for matching jobs and applicants. When used in conjunction with a search engine, a program that can search for matches between inquiry data and data stored within the database, such a system significantly reduces the manual efforts required to match the needs of employers (job providers) and applicants (job seekers). In order to enter applicant data into the database, source documents/files (typically, nonuniformly formatted resume) can be used. Since the format of text data contained within a resume is typically not standardized, text data extraction software is used to retrieve data for entry into the database. Typical of such data extraction software is that described in U.S. Pat. Nos. 5,164,899 and 5,197,004.

## SUMMARY OF THE INVENTION

The present invention is directed to a system for facilitating the accurate transfer of information from a source data stream, e.g., a document/file, to a highly structured database and more particularly to such systems capable of accepting nonuniformly formatted documents, e.g., text documents such as resumes, from a plurality of users via a remote communication interface, e.g., the Internet, and for extracting information therefrom via a procedure which includes user participation to assure the transfer of appropriate entries into the database.

Embodiments of the present invention provide an interactive path for a user (typically, the author of the source document/file) to interactively modify the extracted information. In a preferred embodiment, this interactive path is provided via the Internet and the extracted information can be altered by editing and/or selectively copying portions of the source document/file to supplement and/or modify the extracted information.

A preferred system for facilitating the accurate transfer of information from each of a plurality of nonuniformly formatted source data streams into a structured database comprises (1) means for supplying digital data representing each of a plurality of source data streams from a plurality of users, each source data stream containing data corresponding to multiple discernible source data strings, (2) data extraction means for extracting selected ones of the source data strings and generating related target data strings, (3) means for displaying a structured form comprised of multiple fields, each field capable of accommodating a data string and wherein one or more of the fields have the target data strings inserted within, (4) means for enabling each user to modify the target strings inserted within the displayed form corresponding to the source data stream originating from the user

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before accepting the form, and (5) means for storing data corresponding to the data strings from the form fields into the database.

In a further aspect of the present invention, the providing means uses a remote communication interface, preferably using the Internet, to supply the source document/file to the data extraction means and, subsequently, to return the form having target data strings within its fields.

The novel features of the invention are set forth with particularity in the appended claims. The invention will be best understood from the following description when read in conjunction with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 comprises a simplified block diagram of a system for entering resume data into a database and interactively modifying and/or supplementing such entered data;

FIG. 2 is a portion of the exemplary resume of FIG. 7, showing the extraction of source text strings based on the syntax of surrounding text;

FIG. 3 is a diagram of the structure of an exemplary database comprised of a plurality of applicant data records;

FIG. 4 comprises an expanded block diagram of the flow of the data entry system of FIG. 1;

FIG. 5 comprises a simplified flow chart of the data entry flow of FIG. 4;

FIGS. 6A-6C show exemplary forms for providing resume and/or supplementary data to the database service provider of FIG. 1; and

FIG. 7 shows an exemplary resume used in conjunction with the forms of FIGS. 6A-6C.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is directed to a system for facilitating the accurate transfer of information from a source data stream, e.g., a document/file, to a highly structured database and more particularly to such systems capable of accepting nonuniformly formatted documents, e.g., text documents such as resumes, from a plurality of users via a remote communication interface, e.g., the Internet, and for extracting information therefrom via a procedure which includes user participation to assure the transfer of appropriate entries into the database.

Embodiments of the present invention provide an interactive path for a user (typically, the author of the source document/file) to interactively modify the extracted information, e.g., according to the source document/file. In a preferred embodiment, this interactive path is provided via the Internet and the extracted information can be altered by editing and/or selectively copying portions of the source document/file to supplement and/or modify the extracted information.

FIG. 1 comprises a simplified block diagram of a system 10 for entering data from a source data stream 12, e.g., a text document/file such as a resume, into a database 14 and interactively modifying and/or supplementing such entered data. In an exemplary job search environment, the interactive system 10 provides an improved system and method for accurately transferring information from resume source document/file 12, hereinafter referred to as resumes and preferably independently generated by a plurality of applicants 16, to the database 14 where it is accessible (preferably via a search engine as described further below) to one or



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more employers 18. Resumes are preferably used as the source documents/files 12 in this environment since resumes are a well-accepted tool for providing information from an applicant to an employer and, as such, they typically already exist.

As shown in FIG. 1, the resume 12 is typically generated via path 20 using a word processor (not shown). Interactions between the applicant 16 and resume 12 typically continue via the word processor until a satisfactory resume 12 is generated and stored as corresponding digital data. However, resumes are generally nonstructured or loosely structured (and nonuniformly formatted between users) text documents that are only intended to be human readable e.g., by the employer 18 and the applicant 16, and are typically not directly useable in the highly structured database 14. Consequently, the resume 12 is supplied via path 21 to a data extractor 22, preferably implemented as text data extraction software (e.g., the DEFT software developed by IRW as part of their InfoWeb™ system), to selectively convert information from the format of the unstructured (or loosely structured) resume 12 to the format of the highly structured database 14. Essentially as shown in FIG. 2 (a portion of the exemplary resume of FIG. 7), the data extractor 22 isolates one or more discernible source data strings, e.g., text data strings 24, within the resume 12 and, according to the content of the source data strings, e.g., 24a-24z, and using the syntax of surrounding keyword data, e.g., text strings 26, determines a correlation between source text strings 24 and data fields 28 that are to be entered into the database 14. For example, the keyword text string 26 ("EXPERIENCE") identifies the following source text strings 24 as being related to the applicant's job experience due to the syntax of the surrounding text, e.g., the keyword "experience", the existence of dates, the identification of a company (Inc.), etc.

As shown in FIG. 3, an exemplary applicant database 14 is comprised of a plurality of fixed length records 30, each corresponding to a different one of a plurality of applicants 16. Each record 30 is comprised of a plurality of data fields 28 having predefined formats and lengths, corresponding to searchable pieces of information.

Table I shows an exemplary partial list of definitions of the information stored in the data fields 28 of the database 14 of FIG. 3.

TABLE I

Data Field	Definition
28j	Most recent job start date
28k	Most recent job end date
28l	Most recent job company
28m	Most recent job title
28n	Next job start date
28o	Next job end date
28p	Next job company
28q	Next job title

First, the data extractor 22 extracts source data strings, e.g., text strings 24a-24d, from the resume 12. Optionally, the text format of one or more of the source text strings 24 are then altered by the data extractor 22 to generate target data strings, e.g., text strings 32, of a standardized format. For example, a date text string could be standardized (e.g., March 12, 1993 could be changed to 3/12/93). Otherwise, the stored

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target text string 32 is essentially identical to the source text string 24. As described further below, each target text string 32 preferably directly corresponds to the data fields in the database 14 (e.g., the target string 32 corresponding to source text string 24a corresponds to 28j) and thus, following the modification/acceptance process described below, target text strings 32 are stored via path 34 into the database 14 (following any conversions required by the format of the database 14 and its fields 28).

However, due to lack of structure of the resume 12, the data extractor 22 (also referred to as a natural language processor) is susceptible to making an incomplete or erroneous correlations. Accordingly, the present invention provides an interactive path 36 that enables the applicant 16, generally the individual most acquainted with the contents of the resume 12, to modify the target text strings 32 to best correspond to the resume 12 and, thus, enhance the accuracy of the data stored in the database 14.

FIG. 4 is an expanded block diagram of the system 10 of FIG. 1 showing the data flow which enables each user (i.e., applicant 16 in this exemplary environment) to interact with the information extracted by the data extractor 22 and thus assure the accurate transfer of information from the resume 12 into the structured database 14. The interactive system 10 is preferably comprised of one or more user sites 38 (including a computer 40 operated by the applicant 16) and a database service provider site 42 (generally an automated service) coupled to each other via a remote communication interface 44. In the following discussion, the remote communication interface comprises the Internet 46, the associated hardware and/or software at the user 38 and database service provider 42 sites, typically comprising a modem 48 and a web (Internet) browser 50, and the associated interconnections 52 between (typically phone lines and Internet Service Providers (ISPs)). However, other communication interfaces, e.g., a local area network (LAN) or a direct modem to modem or serial port to serial port connections, are also considered to be alternative remote communication interfaces.

Preferably, each user site 38 is comprised of the computer 40, e.g., a personal computer, having a display control output 54 that drives a display monitor 56 to generate a displayed output 58 and a data entry device, e.g., a keyboard/mouse 60, that directs operation of the computer 40 via control path 62. In contrast, while the database service provider site 42 may typically also include a monitor and a keyboard/mouse, it only requires a computer 64 that interfaces to the Internet 46.

Initially, the user 16 at user site 38 generates the source document/file, i.e., resume 12, at step 66 of FIG. 5. As previously discussed, this generation is interactive and proceeds until user 16 is satisfied with the results. However, the resulting resume 12 is generally unstructured relative to the highly structured form of the database 14.

As a next step, the user 16 requests a first web page form (step 68) via the Internet 46 to begin the process of interactively transferring the resume 12 to the database 14. The first web page form 68 (see FIG. 6A) is stored (see block 70) within computer 64 at the database service provider site 42 and is responsively provided back (see step 72) to the user site 38 via the Internet 46 (commencing STEP ONE) and displayed by the web browser 50 on the monitor 56. The user 16 then preferably provides the existing resume 12 back to the database service provider site 42 via a pasting operation used in conjunction with the web browser 50. In an exemplary Windows 95 environment, the user 16 launches the

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word processor, e.g., Microsoft Word, that had been used to generate the resume 12. Preferably, the user 16 then selects the entire resume document and copies it to the clipboard. Next, the user 16 pastes the resume 12 from the clipboard into a source data input field 70 of the first web page form 68 using the web browser 50, e.g., Microsoft Internet Explorer. Typically, this pasting removes any word processor formatting information and results in digital data (preferably formatted as ASCII text) representing the resume 12 being stored in the web browser 50. (Alternatively, the word processor formatting information can be extracted by the data extractor 22.) The web browser 50 is then used to send (see step 74) the first web page form 68 (now containing the resume 12) to the database service provider site 42 where the resume 12 is stored in resume storage 74. The data extractor 22 then extracts one or more source text strings 24 according to syntactical rules to establish a correspondence between the source text strings 24 (preferably saved as intermediary target text strings 32) and fields 28 of the database 14.

Next, STEP TWO of the process commences by the computer 64 at the database service provider site 42 sending a second web page form 78 (see FIG. 6B) at step 80 which is displayed via the web browser 50 on the monitor 56 at the user site 38. In this example, the second web page form 78 is a supplemental inquiry form, that asks the user 16 one or more supplemental questions. In response, the user 16 fills in supplemental fields 82, e.g., by a pull-down field, free text entry, a radio selection, etc. This filled-in form is sent back to the database service provider 42 in step 84 where supplemental text strings 86 are stored in supplemental text storage 88.

STEP THREE of the process commences by the third web page form generator 90 at the database service provider site 42 generating a third web page form 92 (see FIG. 6C), a structured form having multiple fields 94 each field being capable of accommodating a text string within. Specifically, target text strings 32 (corresponding to source text strings 24) are inserted within fields 94 according to the syntax of the source document/file 12 and the definition (e.g., name, address, city, etc.) of each field 94. Additionally, the supplemental text strings 86 are inserted within the associated fields 94 of form 92. Preferably, the stored resume 12' from resume storage 74 is also added to the third web page form 92. Finally, the third web page form 92 is sent back in step 96 to the user site 38 where it is displayed by the web browser 50 on monitor 56.

The user 16 can now use the view the displayed form 92 to determine its accuracy. If the displayed data, including target text strings 32 and supplemental text strings 86, are accurate the user 16 sends back form 92 to the database service provider site 42 where the accepted text strings are extracted in block 98 and stored in database 14. However, as previously discussed, the displayed data is not always accurate. Accordingly, the user 16 can edit data supplied in the third web page form 92 (preferably including using the supplied resume 12) to cause the fields 94 of form 92 to more accurately represent the applicant's resume information. Using features of the web browser 50, the user 16 can in step 100 edit fields 94 and/or paste information from resume 12' (now part of form 92) to modify the data fields 94. The user in step 102 then sends the modified form 92 back to the database service provider site 42 where accepted text strings 104 from fields 94 are stored in the database 14 in step 98.

As an example of this modification process, it is noted that field 94n corresponding to the third "Company" under "Experience" has been filled in with the target text string 32

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"Los Angeles." This is inaccurate since the data extractor 22 has apparently missed the company name, i.e., Nordstroms, and instead extracted the city name as the target text string 32. Therefore, the user/applicant 16 can identify this inaccuracy and either (1) edit the field 94n by typing in the correct entry or (2) select the source text string 24' from the copy 12' of resume 12 included on the third web page form and paste the proper text (Nordstroms) into field 94n. Accordingly, the user/applicant 16 has been given the opportunity to verify and correct the data before entering it into the database 14, thus assuring the accurate transfer of information into the database 14.

Once the information has been stored in the database 14, a search engine 106, preferably a software program that executes on the computer 64 at the database service provider site 42, can be used to match inquiries, e.g., from one or more employer sites 108 (preferably via the remote communication interface 44) to look for applicants 16 with specific attributes. For example, since the highly structured database 14 contains fields 28 corresponding to the schools attended by each applicant 16, the search engine 106 can, in response to a request from the employer site 108, search for applicants 16 who graduated from specific schools or any other criteria stored in the fields 28 of the database 14.

Although the present invention has been described in detail with reference only to the presently-preferred embodiments, those of ordinary skill in the art will appreciate that various modifications can be made without departing from the invention. For example, while a job search environment has been primarily described, the present invention can be useful in other environments where the source document is essentially unstructured relative to a highly structured database. Accordingly, the invention is defined by the following claims.

I claim:

1. A method for facilitating the accurate transfer of information from each of a plurality of nonuniformly formatted source data streams into a structured database, said method comprising the steps of:

supplying digital data representing each of a plurality of source data streams from a plurality of users, each said source data stream containing data corresponding to multiple discernible source data strings;

processing said digital data for extracting selected ones of said source data strings and generating related target data strings;

displaying a structured form comprised of multiple fields, each field being capable of accommodating a data string and wherein one or more of said fields have said target data strings inserted within;

enabling each user to modify and/or accept said target data strings inserted within said displayed form corresponding to said source data stream originating from said user; and

storing data corresponding to said data strings from said form fields into a database.

2. The method of claim 1 wherein said supplying and displaying steps use a remote communication interface.

3. The method of claim 2 wherein said remote communication interface uses the Internet.

4. The method of claim 1 wherein said displaying step additionally includes displaying said source data stream and said enabling step includes enabling said user to copy selected portions of said source data stream into selected fields of said form.

5. The method of claim 1 wherein one or more of said target strings are essentially equivalent to said extracted source data strings.

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6 The method of claim 1 additionally comprising the step of:

supplying one or more supplemental data strings in response to a supplemental inquiry form; and wherein said displayed structured form additionally displays fields having said supplemental data strings inserted within

7 A system for facilitating the accurate transfer of information from each of a plurality of nonuniformly formatted source data streams into a structured database, said system comprising:

means for supplying digital data representing each of a plurality of source data streams from a plurality of users, each said source data stream containing data corresponding to multiple discernible source data strings;

data extraction means for extracting selected ones of said source data strings and generating related target data strings;

means for displaying a structured form comprised of multiple fields, each field capable of accommodating a data string and wherein one or more of said fields have said target data strings inserted within;

means for enabling each user to modify said target data strings inserted within said displayed form corresponding to said source data stream originating from said user before accepting said form; and

means for storing data corresponding to said data strings from said form fields into said database

8 The system of claim 7 wherein said means for supplying said digital data to said data extraction means comprises each said user submitting said digital data via a remote communication interface

9 The system of claim 8 wherein said remote communication interface uses the Internet

10 The system of claim 7 wherein said data extraction means additionally comprises means for returning said form via a remote communication interface

11 The system of claim 10 wherein said remote communication interface uses the Internet

12 The system of claim 7 wherein said means for enabling includes enabling each said user to copy selected portions of said source data stream into selected fields of said form

13 The system of claim 7 wherein one or more of said target strings are essentially equivalent to said extracted source data strings

8

14 The system of claim 7 additionally comprising:

means for supplying one or more supplemental data strings in response to a supplemental inquiry form; and wherein

said displayed structured form additionally displays fields having said supplemental data strings inserted within.

15 A system for facilitating the accurate transfer of information from each of a plurality of nonuniformly formatted source data streams into a structured database, said system comprising:

a communication interface for supplying from each of a plurality of user sites a source data stream containing data corresponding to multiple discernible source data strings;

a data extractor for extracting selected ones of said source data strings from said source data streams and generating related target data strings and for returning said target data strings to said user sites;

display apparatus for displaying a structured form comprised of multiple fields, each field capable of accommodating a data string and wherein one or more of said fields have said target data strings inserted within;

data entry apparatus for enabling each user to alter said fields of said form corresponding to said source data stream originating from said user before accepting said form; and

a database for storing data corresponding to said data strings from said form fields

16 The system of claim 15 wherein said communication interface uses the Internet

17 The system of claim 15 wherein said display apparatus additionally displays said source data stream and said data entry apparatus enables said users to copy selected portions of said source data stream into selected fields of said form

18 The system of claim 17 wherein said data extraction apparatus additionally returns said source data stream to its corresponding user

19 The system of claim 15 wherein one or more of said target data strings are essentially equivalent to said extracted source data strings

20 The system of claim 15 additionally comprising:

means for supplying one or more supplemental data strings in response to a supplemental inquiry form; and wherein

said displayed structured form additionally displays fields having said supplemental data strings inserted within

\* \* \* \* \*

## EXHIBIT B



US006996561B2

(12) **United States Patent**  
**de Hilster et al.**

(10) **Patent No.:** **US 6,996,561 B2**  
(45) **Date of Patent:** **\*Feb. 7, 2006**

(54) **SYSTEM AND METHOD FOR INTERACTIVELY ENTERING DATA INTO A DATABASE**

(75) **Inventors:** **David S. de Hilster**, Long Beach, CA (US); **Alan G. Porter**, Huntington Beach, CA (US); **John Reese**, Los Angeles, CA (US)

(73) **Assignee:** **BrassRing, LLC**, Waltham, MA (US)

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 649 days.

This patent is subject to a terminal disclaimer.

(21) **Appl. No.:** **09/948,408**

(22) **Filed:** **Sep. 6, 2001**

(65) **Prior Publication Data**

US 2002/0065830 A1 May 30, 2002

**Related U.S. Application Data**

(63) Continuation of application No. 09/456,930, filed on Dec. 7, 1999, now abandoned, which is a continuation-in-part of application No. 09/019,948, filed on Feb. 6, 1998, now Pat. No. 5,999,939

(60) Provisional application No. 60/068,404, filed on Dec. 21, 1997.

(51) **Int. Cl.**  
**G06F 17/30** (2006.01)

(52) **U.S. Cl.** **707/6; 715/500**

(58) **Field of Classification Search** **707/102, 707/6; 715/430, 500**

See application file for complete search history

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

5,164,899 A 11/1992 Sobotka et al. 705/9  
5,197,004 A 3/1993 Sobotka et al. 705/8  
5,315,504 A • 5/1994 Lemble 700/90

(Continued)

**FOREIGN PATENT DOCUMENTS**

CA 2277261 A 9/1999  
WO WO 95/24687 A1 9/1995  
WO WO01/97086 A2 12/2001

**OTHER PUBLICATIONS**

Barchilon, "Technology's Impact on Online Resumes", IEEE, 1998, pp. 183-187

(Continued)

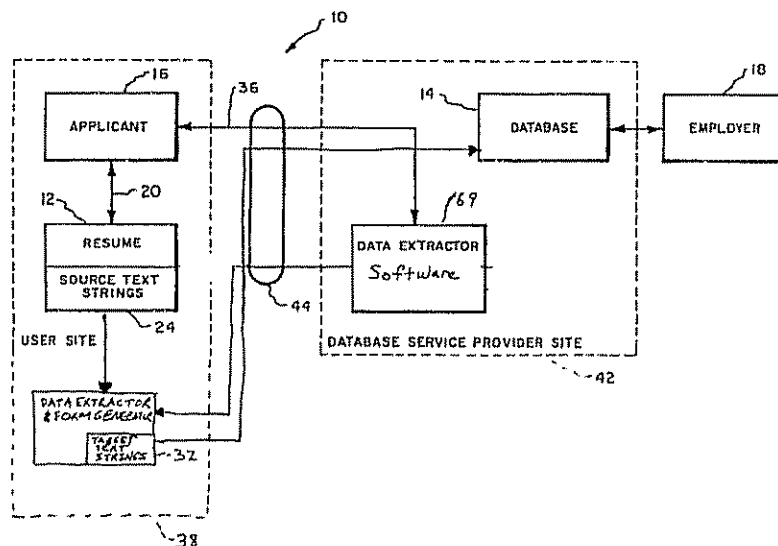
*Primary Examiner*—Wayne Amsbury

(74) *Attorney, Agent, or Firm*—Lowrie, Lando & Anastasi, LLP

(57) **ABSTRACT**

A system and method for facilitating the accurate entry of information into a highly structured database by initially extracting information from a plurality of nonuniformly formatted source data streams, e.g., documents/files, and subsequent interactions with users before storing the accepted and/or modified information into the database. Embodiments of the present invention provide an interactive path for each user (e.g., the author of the source document/file) to interactively modify the extracted data, e.g., according to the source document/file. Preferably, this interactive path is provided via the Internet and the extracted information can be modified by editing and/or selectively copying portions of the source documents/files to supplement and/or modify the extracted information.

**36 Claims, 12 Drawing Sheets**





## US 6,996,561 B2

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## U S PATENT DOCUMENTS

5,361,355 A \* 11/1994 Kondo et al. 717/120  
 5,379,420 A \* 1/1995 Ullner 707/6  
 5,412,384 A \* 5/1995 Chang et al. 341/79  
 5,550,967 A 8/1996 Brewer et al.  
 5,604,900 A 2/1997 Iwamoto et al.  
 5,608,904 A \* 3/1997 Chaudhuri et al. 707/2  
 5,675,780 A \* 10/1997 Plant-Mason et al. 707/6  
 5,721,827 A 2/1998 Logan et al. 709/217  
 5,732,216 A 3/1998 Logan et al. 709/217  
 5,740,425 A 4/1998 Povilus 707/100  
 5,758,126 A \* 5/1998 Daniels et al. 715/780  
 5,758,324 A \* 5/1998 Hartman et al. 705/1  
 5,806,057 A 9/1998 Gormley et al. 707/1  
 5,809,248 A 9/1998 Vidovic 709/219  
 5,819,301 A \* 10/1998 Rowe et al. 715/513  
 5,832,496 A 11/1998 Anand et al. 707/102  
 5,832,497 A \* 11/1998 Taylor 707/104 1  
 5,855,007 A 12/1998 Jovicic et al. 705/14  
 5,857,183 A \* 1/1999 Kableshkov 707/3  
 5,907,837 A 5/1999 Ferrel et al. 707/3  
 5,973,696 A \* 10/1999 Agranat et al. 715/760  
 5,999,939 A 12/1999 de Hilster 707/102  
 6,018,749 A 1/2000 Rivette et al. 707/505  
 6,044,382 A \* 3/2000 Martino 715/505  
 6,047,296 A \* 4/2000 Wilmott et al. 715/513  
 6,078,924 A \* 6/2000 Ainsbury et al. 707/101  
 6,199,048 B1 3/2001 Hudetz et al.  
 6,202,023 B1 3/2001 Hancock et al.

6,233,618 B1 5/2001 Shannon  
 6,266,659 B1 7/2001 Nadkarni  
 6,321,228 B1 11/2001 Crandall et al.  
 6,785,679 B1 8/2004 Dane et al.  
 2004/0215623 A1 10/2004 Dane et al.

## OTHER PUBLICATIONS

*Brassring Inc. v. Interactive Search Inc.*, Complaint, Civil Action No. 00CV11525JLT, filed Jul. 31, 2000 in the United States District Court for the District of Massachusetts, and a copy of the Docket relating thereto.

Chabrow, E. R., "Online employment (World Wide Web: job hunting and recruitment applications)," *Information Week*, Jan. 23, 1995, No. 511, pp. 38-41, 44-45.

Goth et al., "Scarcity of IT Workers is the Mother of Recruiter Innovations", *IEEE*, 1999, pp. 15-17.

Maltis, "Conducting a Job Search on the Internet", *IEEE*, 1997, pp. 131-133.

Romei, L. K., "Human Resource Management Keeps Computers Humming (job applications processing)," *Managing Office Technology*, Nov. 1994, vol. 39, No. 11, pp. 45.

Noah, William W. and Rollin V. Weeks, "TRW: Description of the Deft System as Used for MUC-5," pp. 237-248.

Noah, William W. and Rollin V. Weeks, "TRW: Description of the Deft System as Used for MUC-5," pp. 237-248.

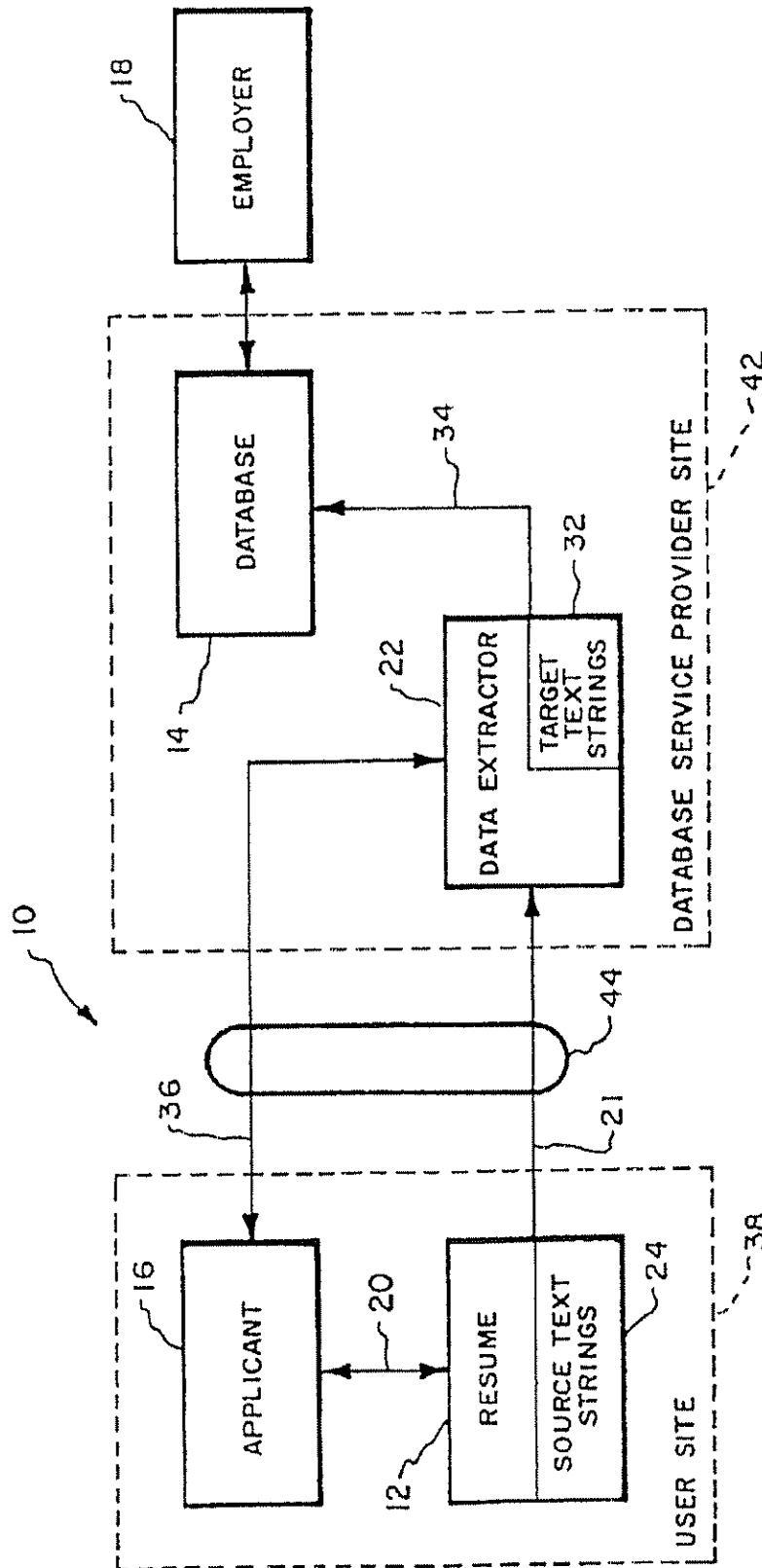
\* cited by examiner

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*Fig. 1*

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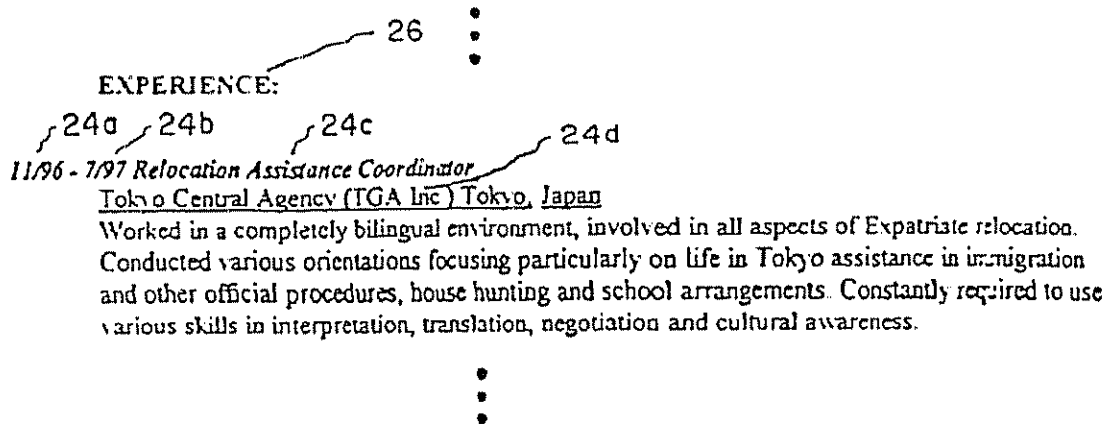


Fig. 2

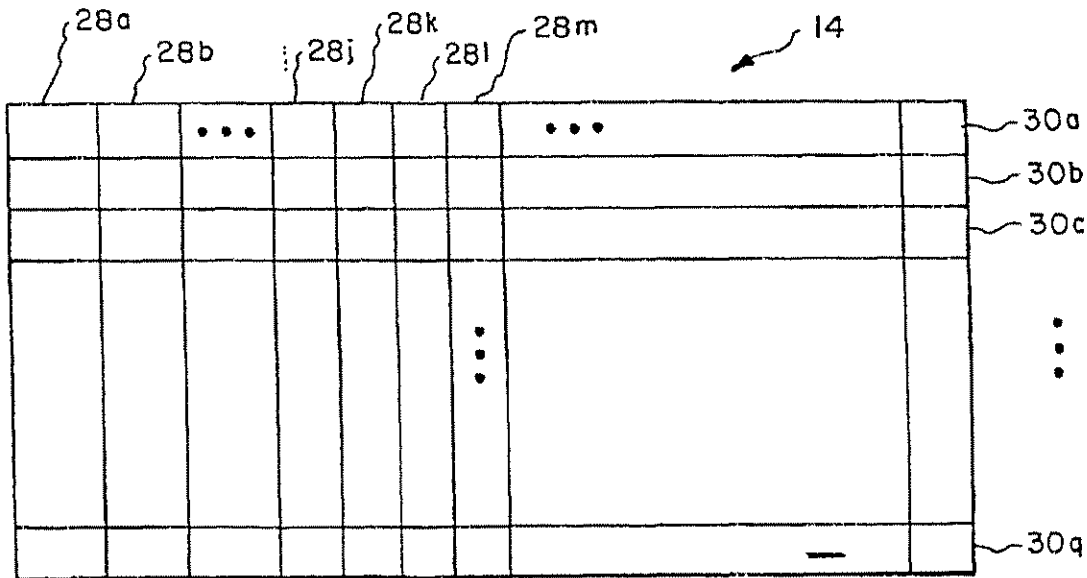
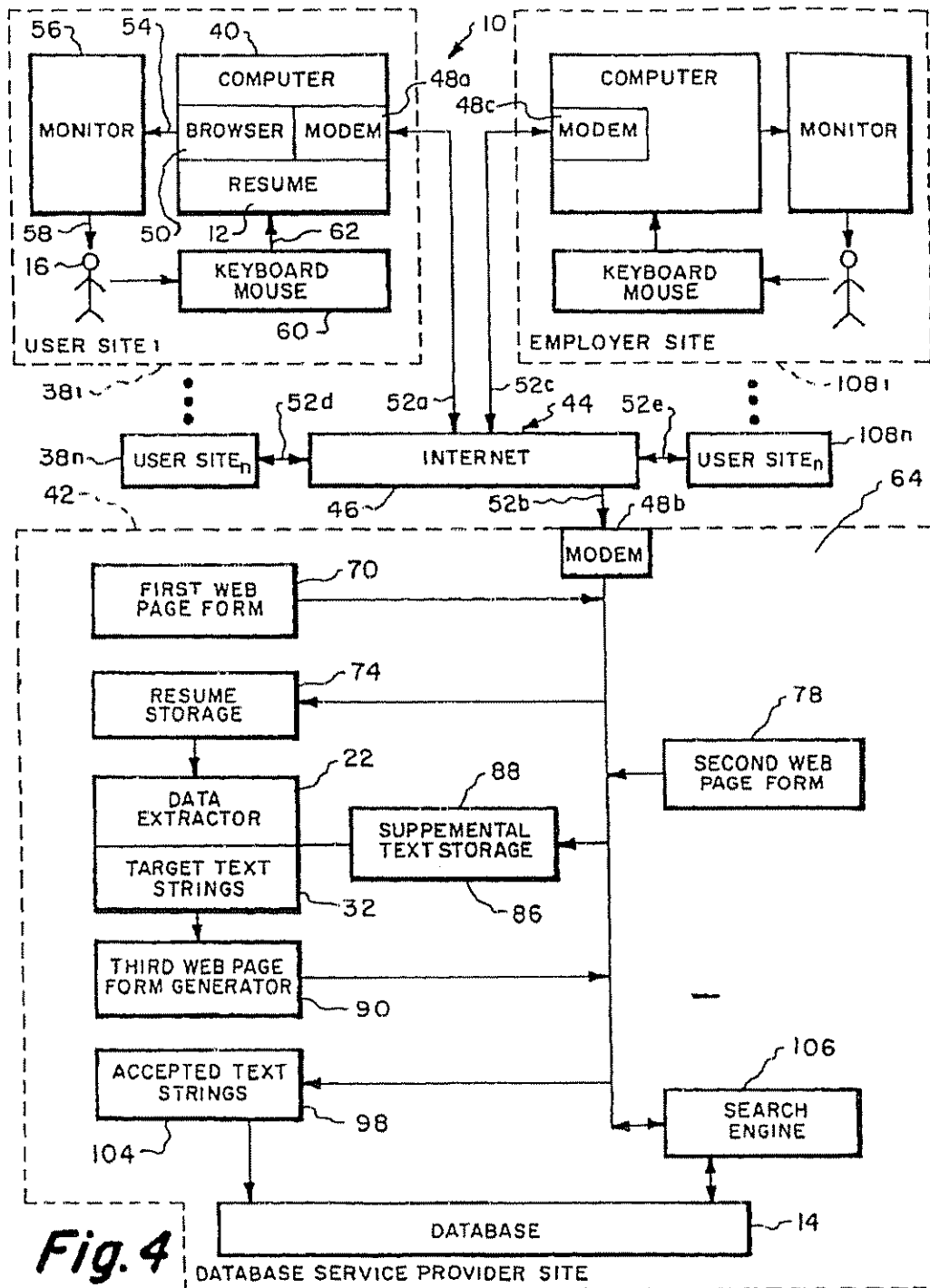
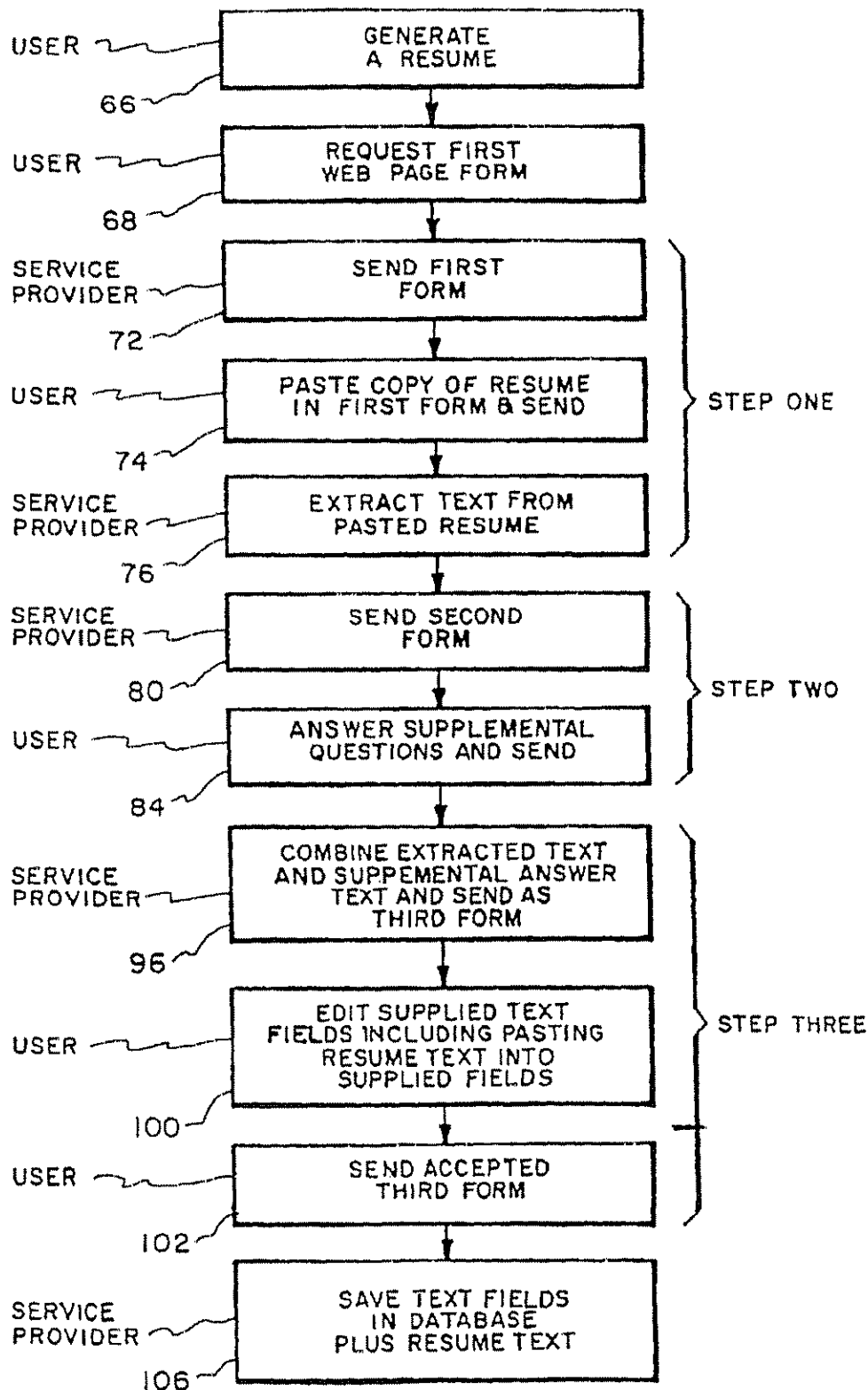


Fig. 3







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jobEngine

Post Resume

Help?

This page is for posting a new resume. Click here to [Change](#) or [Remove](#) a previously posted resume.

Instructions:

There are 3 steps to post your resume:

- Paste in your resume.
- Answer a few questions.
- Review our work to ensure that the information in your resume is correct. Then enroll.

And only a few rules:

- Items labelled in Red are Required.
- Items labelled in Black are Optional, but we strongly suggest that you take a few minutes to answer the questions. Your answers provide information, not typically found in a resume, that employers want to know before they contact you.

Don't worry -- nothing will be saved in the database without your review and approval.

## STEP ONE -- PASTE IN YOUR RESUME

Copy your resume from a text file on your computer and paste into the text block below

Be sure your contact information (name, address, phone number(s) and email address) appears only at the top of the resume, and that nothing in the body of your resume (like your current job description) identifies you. This protects your privacy. This step is Required.

Resume:

Arthur Smith  
 1234 Main Street  
 Sausalito, California 94965  
 Tel: 415-555-5432 Fax: 415-555-5543  
 E-mail: asmith@isp.com

EXPERIENCE:

11/96 - 7/97 Relocation Assistance Coordinator  
 Tokyo Central Agency (TGA Inc.) Tokyo, Japan

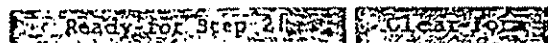


Fig. 6A

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jobEngine

Post Resume

Help?

## STEP TWO -- ANSWER A FEW QUESTIONS

There's some additional information, not typically in your resume, that is very helpful to employers. Most of these questions are optional. However, you should try to answer as many as possible. It will only take a few minutes... promise.

### Job Goals

Functional Specialties

GENERAL MANAGEMENT  
Senior Management (CEO Pres, COO, GM)  
Branch & Regional Management  
INFORMATION TECHNOLOGY MANAGEMENT

Type of Position

Full Time

Expected Compensation

open

Travel

Moderate (25%-50%)

Relocation

Yes - I can relocate to:

most any-where

### About You

Citizenship

U.S. Citizen

Current Clearances

No

### Enrollment

Type

- ☒ Open - Your full resume, including contact information, will be available to employers.
- ☐ Confidential - Your full resume, except your contact information, will be available to employers. Those interested in contacting you can do so via email forwarded to you confidentially.
- ☐ Private - No employer can see your resume. It is retained in jobEngine's Resume Center as a convenience to you when applying to jobs.

Ready for Step 3?

Start Over

Comments, questions or suggestions? Please email us at [support@jobEngine.com](mailto:support@jobEngine.com)

— A ZDNet and i-Search Site —



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Fig. 6B

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**jobEngine****Post Resume****STEP 3 -- REVIEW INFORMATION AND ENROLL**[Help?](#)

We know you hate to enter again what you have already put into your resume. So, we've tried first to find information we need. Please review the information carefully and correct errors. A copy of your resume included for copying and pasting as needed. This is an important step. Remember – items labeled in Red Required.

Be sure to scroll through all the data in this window, make all needed corrections, select a Resume Access Code and password, and then Post your resume.

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Contact Information (confidential)

Name   94a 94b 94c 94d

Address  94e  
 94f

City, State Zip   94i 94g 94h

Country  94i

Phone Home  Work  Fax  94i

Email  94i

Web Page

**Experience**

Your three most recent positions. The order of jobs is not important. For each job entered, information is in each of the four columns with red labels.

Start Date	End Date	Company	Title
<input type="text" value="11/96"/>	<input type="text" value="7/97"/>	<input type="text" value="TGA Inc."/>	<input type="text" value="Relocation Assistan"/>
<input type="text" value="3/95"/>	<input type="text" value="10/96"/>	<input type="text" value="NCR English Language Inst"/>	<input type="text" value="English Teacher"/>
<input type="text" value="8/94"/>	<input type="text" value="2/95"/>	<input type="text" value="Los Angeles"/>	<input type="text" value="Sales Associate"/>
Year First Employed	<input type="text" value="5/93"/>	32	94n

**Education**

Your three most recent degrees. For each degree entered, information is required in each of the two columns with red labels. Information in the other columns is helpful.

Year	Degree	School	Major
<input type="text" value="March, 1"/>	<input type="text" value="Bachelor of Ar"/>	<input type="text" value="University of California"/>	<input type="text" value="Speech Communications"/>
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

**Fig. 6C (PART 1 OF 3)**

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**Job Goals**

Functional Specialties

Senior Management (CEO Pres, COO, GM)
Branch & Regional Management
INFORMATION TECHNOLOGY MANAGEMENT

Type of Position

☒ Full Time

Expected Compensation

Travel

☒ Moderate (25%-50%)

Relocation

☒ Yes - I can relocate to: Areas 

**About You**

Citizenship

☒ U.S. Citizen

Current Clearances

☒ No

**Please Help Us**

We are curious about how you learned about jobEngine. Please help us by selecting one of the choices

**Access Keys**

Select an access code and password for future access to your resume.

Resume Access Code

Password

Password (again)

**Posting**

Neither Ziff-Davis nor I-Search is responsible for the verification of data provided and shall not be liable for any errors, factual, transcript otherwise, contained in the information posted. Further, we assume no obligation with respect to the compliance of the information or a process with applicable governmental laws, rules and regulations of any kind regarding employment practices. With respect to confidentiality Ziff-Davis and I-Search will use reasonable measures to delete the applicant's identity, but shall not be responsible for unintentional disclosure of software malfunctions or exposures of applicant through descriptive information contained in the body of the resume.

☒ I accept the agreement, post my resume

**Your resume text for cutting and pasting information a**

[Back to Form](#)

Processed by I-Search: 151-9000-5279

12'

Arthur Smith  
1234 Main Street  
Sausalito, California 94965  
Tel: 415-555-5432 Fax: 415-555-5543  
E-mail: asmith@isp.com

EXPERIENCE:

**Fig. 6C (PART 2 OF 3)**

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11/96 - 7/97 Relocation Assistance Coordinator

Tokyo Central Agency (TGA Inc.) Tokyo, Japan

Worked in a completely bilingual environment, involved in all aspects of Expa  
Conducted various orientations focusing particularly on life in Tokyo assista  
other official procedures, house hunting and school arrangements. Constantly  
skills in interpretation, translation, negotiation and cultural awareness.

3/95 - 10/96 English Teacher

NCR English Language Institute, Tokyo, Japan

Neva Inter cultural Institute, Tokyo, Japan

Experienced in all aspects of teaching English as a foreign language, includi  
T.O.E.F.L. Actively participated in recruitment of new students, student lev  
progress analysis. Voted Teacher of the Year by students and upper managemen

8/94 - 2/95 Sales Associate

24' Nordstroms Los Angeles, CA  
Consistently ranked as highest in customer sales and satisfaction in a compet  
environment. Sharpened communicational skills and refined fashion sense gave  
privilege of an honest and bright salesperson.

5/93 - 6/94 Resort Hotel Supervisor

Pacific Islands Club, Guam, U. S. A.

Thrived in a resort where the primary focus was to initiate guest interaction  
department of sports, entertainment and activities. Assumed direct responsib  
sports complex, training the constant influx of new employees, inventory and  
introduction of inventive and efficient motivational techniques) and complete

#### EDUCATION:

Bachelor of Arts - Speech Communications

University of California at Santa Barbara

Graduation: March, 1993

Major Courses of Study & Interest

Interpersonal Relations, Creative Writing, Psychology, Sociology

CERTIFICATES: National Japanese Proficiency Exam - Level 2

INTERESTS: Travel, Japanese, Scuba Diving, Tennis

{PGCNT}

{PAGE}

Comments, questions or suggestions? Please email us at [support@JobEngine.com](mailto:support@JobEngine.com)

— A ZDNet and I-Search Site —



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Interactive Search.



**Fig. 6C (PART 3 OF 3)**

U.S. Patent

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## Arthur Smith

1234 Main Street  
Sausalito, California 94965  
Tel: 415-555-5432 Fax: 415-555-5543  
E-mail: asmith@isp.com

12

### EXPERIENCE:

#### *11/96 - 7/97 Relocation Assistance Coordinator*

Tokyo Central Agency (TGA Inc.) Tokyo, Japan

Worked in a completely bilingual environment, involved in all aspects of Expatriate relocation. Conducted various orientations focusing particularly on life in Tokyo assistance in immigration and other official procedures, house hunting and school arrangements. Constantly required to use various skills in interpretation, translation, negotiation and cultural awareness.

#### *3/95 - 10/96 English Teacher*

NCR English Language Institute, Tokyo, Japan

Nova Inter cultural Institute, Tokyo, Japan

Experienced in all aspects of teaching English as a foreign language, including Phonics, and T.O.E.F.L. Actively participated in recruitment of new students, student level assessment and progress analysis. Voted Teacher of the Year by students and upper management.

#### *8/94 - 2/95 Sales Associate*

Nordstroms, Los Angeles, CA

Consistently ranked as highest in customer sales and satisfaction in a competitive retail environment. Sharpened communicational skills and refined fashion sense gave customers the privilege of an honest and bright salesperson.

#### *5/93 - 6/94 Resort Hotel Supervisor*

Pacific Islands Club, Guam, U.S.A.

Thrived in a resort where the primary focus was to initiate guest interaction in the unique department of sports, entertainment and activities. Assumed direct responsibility for managing the sports complex, training the constant influx of new employees, inventory and ordering of supplies, introduction of inventive and efficient motivational techniques) and complete area maintenance.

### EDUCATION:

Bachelor of Arts - Speech Communications  
University of California at Santa Barbara  
Graduation: March, 1993

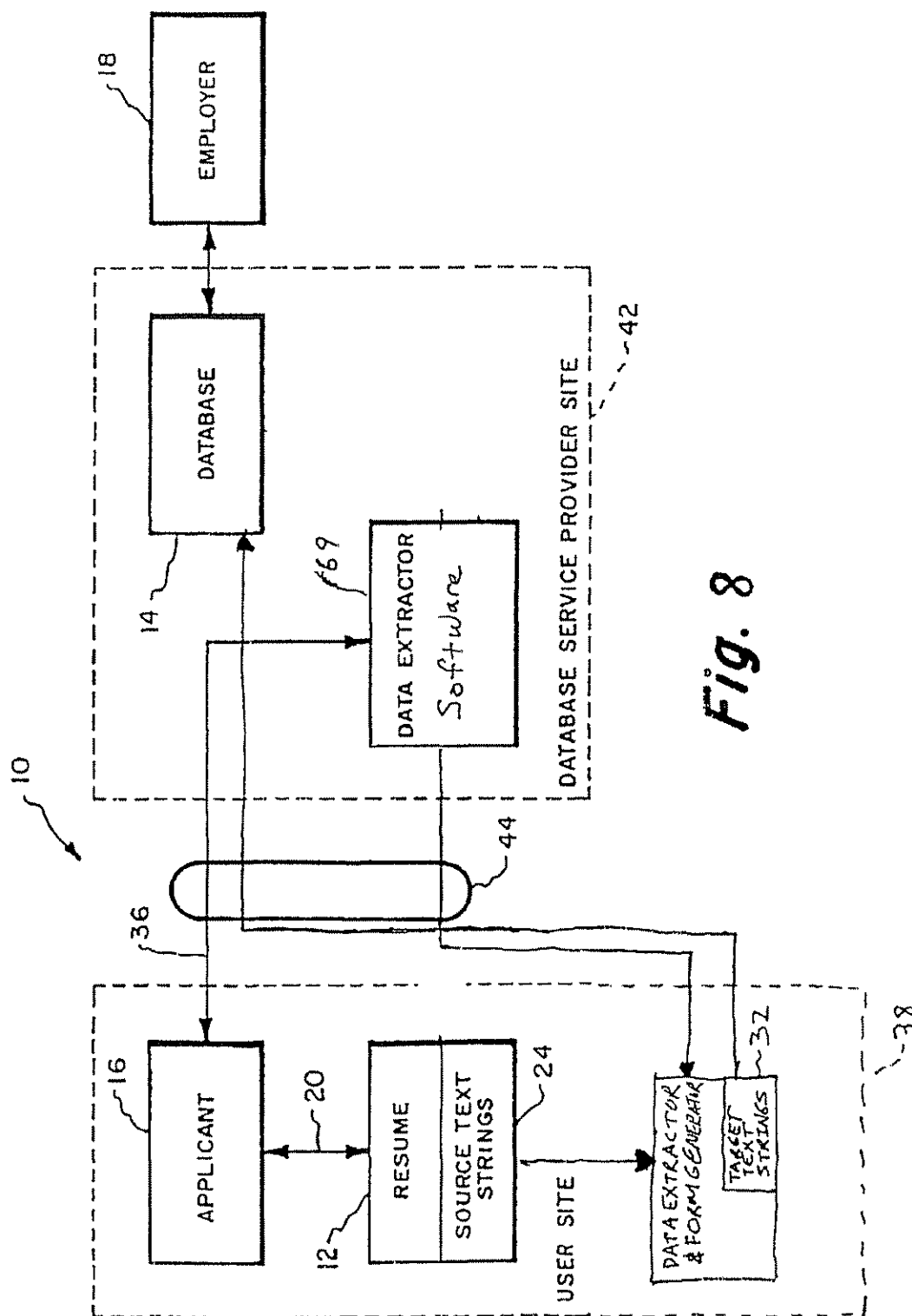
Major Courses of Study & Interest  
Interpersonal Relations, Creative Writing, Psychology, Sociology

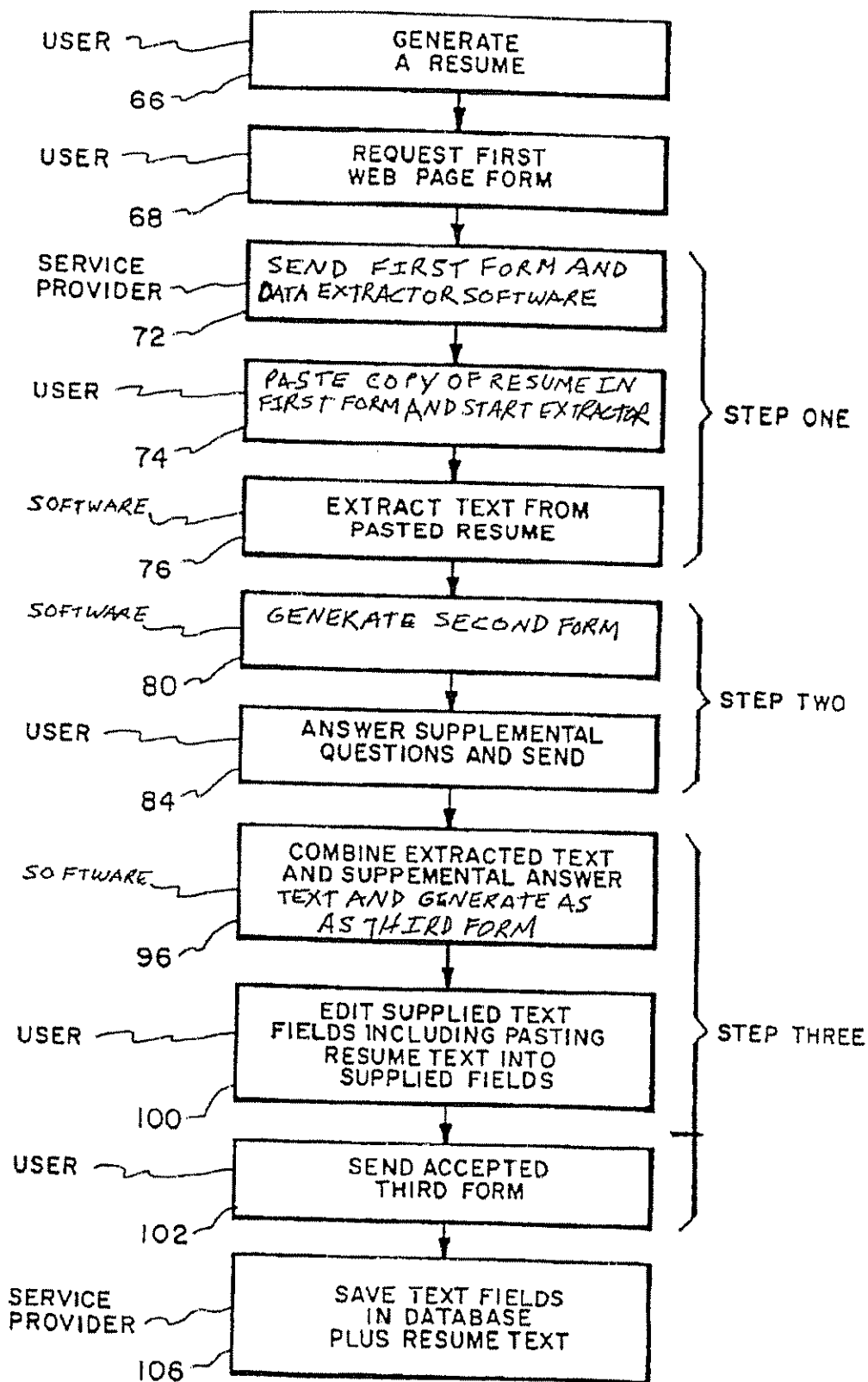
CERTIFICATES: National Japanese Proficiency Exam - Level 2

INTERESTS: Travel, Japanese, Scuba Diving, Tennis

*Fig. 7*







ig. 9

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## SYSTEM AND METHOD FOR INTERACTIVELY ENTERING DATA INTO A DATABASE

### CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of U.S. application Ser. No. 09/456,930, filed Dec. 7, 1999 now abandoned, which is a continuation-in-part of U.S. Application Ser. No. 09/019,948, filed Feb. 6, 1998, now U.S. Pat. No. 5,999,939, which claims the benefit of U.S. Provisional Application No. 60/068,404, filed Dec. 21, 1997.

### BACKGROUND OF THE INVENTION

The present invention relates to data processing systems for entering information into and accessing information from large structured databases and in particular to those systems which allow multiple independent users to enter information from nonuniformly formatted documents/files and to interact with the system to assure the accuracy of the database entries.

The use of databases for storing data records which can be readily searched is well known. A typical application of large structured databases would be a system for matching jobs and applicants. When used in conjunction with a search engine, a program that can search for matches between inquiry data and data stored within the database, such a system significantly reduces the manual efforts required to match the needs of employers (job providers) and applicants (job seekers). In order to enter applicant data into the database, source documents/files (typically, nonuniformly formatted resume) can be used. Since the format of text data contained within a resume is typically not standardized, text data extraction software is used to retrieve data for entry into the database. Typical of such data extraction software is that described in U.S. Pat. Nos. 5,164,899 and 5,197,004.

### SUMMARY OF THE INVENTION

The present invention is directed to a system for facilitating the accurate transfer of information from a source data stream, e.g., a document/file, to a highly structured database and more particularly to such systems capable of accepting nonuniformly formatted documents, e.g., text documents such as resumes, advertisements, and medical records, from a plurality of users via a remote communication interface, e.g., the Internet, and for extracting information therefrom via a procedure which includes user participation to assure the transfer of appropriate entries into the database.

Embodiments of the present invention provide an interactive path for a user (typically, the author of the source document/file) to interactively modify the extracted information. In a preferred embodiment, this interactive path is provided via the Internet and the extracted information can be altered by editing and/or selectively copying portions of the source document/file to supplement and/or modify the extracted information.

A preferred system for facilitating the accurate transfer of information from each of a plurality of nonuniformly formatted source data streams into a structured database comprises (1) means for supplying digital data representing each of a plurality of source data streams from a plurality of users, each source data stream containing data corresponding to multiple discernible source data strings, (2) data extraction means for extracting selected ones of the source data strings and generating related target data strings, (3) means for

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displaying a structured form comprised of multiple fields, each field capable of accommodating a data string and wherein one or more of the fields have the target data strings inserted within, (4) means for enabling each user to modify the target strings inserted within the displayed form corresponding to the source data stream originating from the user before accepting the form, and (5) means for storing data corresponding to the data strings from the form fields into the database.

In a further aspect of the present invention, the providing means uses a remote communication interface, preferably using the Internet, to supply the source document/file to the data extraction means and, subsequently, to return the form having target data strings within its fields.

An additional embodiment of the present invention also comprises a means for providing one or more supplemental inquiry forms to a user, receiving data strings in response to the supplemental inquiry forms, and for providing the data strings back to the user along with the target data strings in a structured form.

In a further aspect of the present invention, the providing means enables a user to submit digital data in the form of an audio stream. Data processing includes the conversion of the audio stream to a text string. The text string is then processed in the same manner as a user submitted source string containing text.

In an alternative embodiment of the present invention, the providing means uses traditional mail to supply the source document/file to the data extraction means. Alternatively, the data extraction means, structured form generating means, supplemental inquiry form generator, and structured form editing means are supplied to the user's computer as a self executing piece of software.

The novel features of the invention are set forth with particularity in the appended claims. The invention will be best understood from the following description when read in conjunction with the accompanying drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 comprises a simplified block diagram of a system for entering resume data into a database and interactively modifying and/or supplementing such entered data;

FIG. 2 is a portion of the exemplary resume of FIG. 7, showing the extraction of source text strings based on the syntax of surrounding text;

FIG. 3 is a diagram of the structure of an exemplary database comprised of a plurality of applicant data records;

FIG. 4 comprises an expanded block diagram of the flow of the data entry system of FIG. 1;

FIG. 5 comprises a simplified flow chart of the data entry flow of FIG. 4;

FIGS. 6A-6C show exemplary forms for providing resume and/or supplementary data to the database service provider of FIG. 1; and

FIG. 7 shows an exemplary resume used in conjunction with the forms of FIGS. 6A-6C.

FIG. 8 comprises a simplified block diagram of a system for entering resume data into a database and interactively modifying and/or supplementing such entered data using software stored on a user's computer.

FIG. 9 comprises a flow chart of the data entry system of FIG. 8.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is directed to a system for facilitating the accurate transfer of information from a source data

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stream, e.g., a document/file, to a highly structured database and more particularly to such systems capable of accepting nonuniformly formatted documents, e.g., text documents such as resumes, from a plurality of users via a remote communication interface, e.g., the Internet, and for extracting information therefrom via a procedure which includes user participation to assure the transfer of appropriate entries into the database.

In a preferred embodiment of the present invention, the system is used to place nonuniformly formatted advertisements into a structured database. In an additional embodiment of the present invention, the system is used to place nonuniformly formatted medical records into a structured database.

Embodiments of the present invention provide an interactive path for a user (typically, the author of the source document/file) to interactively modify the extracted information, e.g., according to the source document/file. In a preferred embodiment, this interactive path is provided via the Internet and the extracted information can be altered by editing and/or selectively copying portions of the source document/file to supplement and/or modify the extracted information.

FIG. 1 comprises a simplified block diagram of a system 10 for entering data from a source data stream 12, e.g., a text document/file such as a resume, into a database 14 and interactively modifying and/or supplementing such entered data. In an exemplary job search environment, the interactive system 10 provides an improved system and method for accurately transferring information from resume source document/file 12, hereinafter referred to as resumes and preferably independently generated by a plurality of applicants 16, to the database 14 where it is accessible (preferably via a search engine as described further below) to one or more employers 18. Resumes are preferably used as the source documents/files 12 in this environment since resumes are a well-accepted tool for providing information from an applicant to an employer and, as such, they typically already exist.

As shown in FIG. 1, the resume 12 is typically generated via path 20 using a word processor (not shown). Interactions between the applicant 16 and resume 12 typically continue via the word processor until a satisfactory resume 12 is generated and stored as corresponding digital data. However, resumes are generally nonstructured or loosely structured (and nonuniformly formatted between users) text documents that are only intended to be human readable e.g., by the employer 18 and the applicant 16, and are typically not directly useable in the highly structured database 14. Consequently, the resume 12 is supplied via path 21 to a data extractor 22, preferably implemented as text data extraction software (e.g., the DEFT software developed by TRW as part of their InfoWeb™ system), to selectively convert information from the format of the unstructured (or loosely structured) resume 12 to the format of the highly structured database 14. Essentially as shown in FIG. 2 (a portion of the exemplary resume of FIG. 7), the data extractor 22 isolates one or more discernible source data strings, e.g., text data strings 24, within the resume 12 and, according to the content of the source data strings, e.g., 24a-24z, and using the syntax of surrounding keyword data, e.g., text strings 26, determines a correlation between source text strings 24 and data fields 28 that are to be entered into the database 14. For example, the keyword text string 26 ("EXPERIENCE") identifies the following source text strings 24 as being related to the applicant's job experience due to the syntax of the surrounding text, e.g., the keyword "experience", the existence of dates, the identification of a company (Inc.), etc

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As shown in FIG. 3, an exemplary applicant database 14 is comprised of a plurality of fixed length records 30, each corresponding to a different one of a plurality of applicants 16. Each record 30 is comprised of a plurality of data fields 28 having predefined formats and lengths, corresponding to searchable pieces of information.

Table 1 shows an exemplary partial list of definitions of the information stored in the data fields 28 of the database 14 of FIG. 3.

TABLE I

Data Field	Definition
28j	Most recent job start date
28k	Most recent job end date
28l	Most recent job company
28m	Most recent job title
28n	Next job start date
28o	Next job end date
28p	Next job company
28q	Next job title

First, the data extractor 22 extracts source data strings, e.g., text strings 24a-2d, from the resume 12. Optionally, the text format of one or more of the source text strings 24 are then altered by the data extractor 22 to generate target data strings, e.g., text strings 32, of a standardized format. For example, a date text string could be standardized (e.g., Mar 12, 1993 could be changed to 3/12/93). Otherwise, the stored target text string 32 is essentially identical to the source text string 24. As described further below, each target text string 32 preferably directly corresponds to the data fields 28 in the database 14 (e.g., the target string 32 corresponding to source text string 24a corresponds to 28j) and thus, following the modification/acceptance process described below, target text strings 32 are stored via path 34 into the database 14 (following any conversions required by the format of the database 14 and its fields 28).

However, due to lack of structure of the resume 12, the data extractor 22 (also referred to as a natural language processor) is susceptible to making an incomplete or erroneous correlations. Accordingly, the present invention provides an interactive path 36 that enables the applicant 16, generally the individual most acquainted with the contents of the resume 12, to modify the target text strings 32 to best correspond to the resume 12 and, thus, enhance the accuracy of the data stored in the database 14.

FIG. 4 is an expanded block diagram of the system 10 of FIG. 1 showing the data flow which enables each user (i.e., applicant 16 in this exemplary environment) to interact with the information extracted by the data extractor 22 and thus assure the accurate transfer of information from the resume 12 into the structured database 14. The interactive system 10 is preferably comprised of one or more user sites 38 (including a computer 40 operated by the applicant 16) and a database service provider site 42 (generally an automated service) coupled to each other via a remote communication interface 44. In the following discussion, the remote communication interface comprises the Internet 46, the associated hardware and/or software at the user 38 and database service provider 42 sites, typically comprising a modem 48 and a web (Internet) browser 50, and the associated interconnections 52 between (typically phone lines and Internet Service Providers (ISPs)). However, other communication interfaces, e.g., a local area network (LAN) or a direct modem to modem or serial port to serial port connections, are also considered to be alternative remote communication interfaces.



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Preferably, each user site 38 is comprised of the computer 40, e.g., a personal computer, having a display control output 54 that drives a display monitor 56 to generate a displayed output 58 and a data entry device, e.g., a keyboard/mouse 60, that directs operation of the computer 40 via control path 62. In contrast, while the database service provider site 42 may typically also include a monitor and a keyboard/mouse, it only requires a computer 64 that interfaces to the Internet 46.

Initially, the user 16 at user site 38 generates the source document/file, i.e., resume 12, at step 66 of FIG. 5. As previously discussed, this generation is interactive and proceeds until user 16 is satisfied with the results. However, the resulting resume 12 is generally unstructured relative to the highly structured form of the database 14.

As a next step, the user 16 requests a first web page form (step 68) via the Internet 46 to begin the process of interactively transferring the resume 12 to the database 14. The first web page form 68 (see FIG. 6A) is stored (see block 70) within computer 64 at the database service provider site 42 and is responsively provided back (see step 72) to the user site 38 via the Internet 46 (commencing STEP ONE) and displayed by the web browser 50 on the monitor 56. The user 16 then preferably provides the existing resume 12 back to the database service provider site 42 via a pasting operation used in conjunction with the web browser 50. In an exemplary Windows 95 environment, the user 16 launches the word processor, e.g., Microsoft Word, that had been used to generate the resume 12. Preferably, the user 16 then selects the entire resume document and copies it to the clipboard. Next, the user 16 pastes the resume 12 from the clipboard into a source data input field 70 of the first web page form 68 using the web browser 50, e.g., Microsoft Internet Explorer. Typically, this pasting removes any word processor formatting information and results in digital data (preferably formatted as ASCII text) representing the resume 12 being stored in the web browser 50. (Alternatively, the word processor formatting information can be extracted by the data extractor 22.) The web browser 50 is then used to send (see step 74) the first web page form 68 (now containing the resume 12) to the database service provider site 42 where the resume 12 is stored in resume storage 74. The data extractor 22 then extracts one or more source text strings 24 according to syntactical rules to establish a correspondence between the source text strings 24 (preferably saved as intermediary target text strings 32) and fields 28 of the database 14.

Next, STEP TWO of the process commences by the computer 64 at the database service provider site 42 sending a second web page form 78 (see FIG. 6B) at step 80 which is displayed via the web browser 50 on the monitor 56 at the user site 38. In this example, the second web page form 78 is a supplemental inquiry form, that asks the user 16 one or more supplemental questions. In response, the user 16 fills in supplemental fields 82, e.g., by a pull-down field, free text entry, a radio selection, etc. This filled-in form is sent back to the database service provider 42 in step 84 where supplemental text strings 86 are stored in supplemental text storage 88.

STEP THREE of the process commences by the third web page form generator 90 at the database service provider site 42 generating a third web page form 92 (see FIG. 6C), a structured form having multiple fields 94 each field being capable of accommodating a text string within. Specifically, target text strings 32 (corresponding to source text strings 24) are inserted within fields 94 according to the syntax of the source document/file 12 and the definition (e.g., name,

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address, city, etc.) of each field 94. Additionally, the supplemental text strings 86 are inserted within the associated fields 94 of form 92. Preferably, the stored resume 12' from resume storage 74 is also added to the third web page form 92. Finally, the third web page form 92 is sent back in step 96 to the user site 38 where it is displayed by the web browser 50 on monitor 56.

The user 16 can now use the view the displayed form 92 to determine its accuracy. If the displayed data, including target text strings 32 and supplemental text strings 86, are accurate the user 16 sends back form 92 to the database service provider site 42 where the accepted text strings are extracted in block 98 and stored in database 14. However, as previously discussed, the displayed data is not always accurate. Accordingly, the user 16 can edit data supplied in the third web page form 92 (preferably including using the supplied resume 12) to cause the fields 94 of form 92 to more accurately represent the applicant's resume information. Using features of the web browser 50, the user 16 can in step 100 edit fields 94 and/or paste information from resume 12' (now part of form 92) to modify the data fields 94. The user in step 102 then sends the modified form 92 back to the database service provider site 42 where accepted text strings 104 from fields 94 are stored in the database 14 in step 98.

As an example of the modification process, it is noted that field 94<sub>n</sub> corresponding to the third "Company" under "Experience" has been filled in with the target text string 32 "Los Angeles." This is inaccurate since the data extractor 22 has apparently missed the company name, i.e., Nordstroms, and instead extracted the city name as the target text string 32. Therefore, the user/applicant 16 can identify this inaccuracy and either (1) edit the field 94<sub>n</sub> by typing in the correct entry or (2) select the source text string 24' from the copy 12' of resume 12 included on the third web page form and paste the proper text (Nordstroms) into field 94<sub>n</sub>. Accordingly, the user/applicant 16 has been given the opportunity to verify and correct the data before entering it into the database 14, thus assuring the accurate transfer of information into the database 14.

Once the information has been stored in the database 14, a search engine 106, preferably a software program that executes on the computer 64 at the database service provider site 42, can be used to match inquiries, e.g., from one or more employer sites 108 (preferably via the remote communication interface 44) to look for applicants 16 with specific attributes. For example, since the highly structured database 14 contains fields 28 corresponding to the schools attended by each applicant 16, the search engine 106 can, in response to a request from the employer site 108, search for applicants 16 who graduated from specific schools or any other criteria stored in the fields 28 of the database 14.

In another embodiment of the current invention, the user 16 at user site 38 generates an audio file to be used as the source file, i.e., resume 12, at step 66 of FIG. 5. The ability to submit an audio file may be particularly helpful to those who have difficulty typing or who prefer to dictate. The user 16 proceeds through the same series of steps as previously described, except that instead of cutting and pasting resume text from some type of word processor into the first web page form 68, the user 16 attaches the audio file via an attachment operation in conjunction with the web browser 50. The user 16 then uses the web browser 50 to send the first web page form 68 (now containing the resume 12 as an audio file) to the database service provider site 42 where the audio file is stored in resume storage 74.

Once received by the database service provider site 42 a speech to text conversion program is used to convert the

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audio file attached to first web page form 68 into a text file 12. The text file 12 is also stored in resume storage 74. The text file is then used the same way a user generated text file 12 is used as described above to generate an entry in database 14.

In another embodiment of the invention (see FIG. 8) the text extractor, supplemental question page generator, structured form generator, and structured form editor is supplied to the user's computer 40 as an applet or other self executing piece of software 69 by the database service provider. A speech to text conversion program may also be supplied to the user's computer 40. The provision of the software 69 may be done through a remote communication interface, such as the Internet. The applet or software 69 may use a web browser as an interface or it may have its own independent user interface.

Initially, the user 16 at user site 38 generates the source document/file, i.e., resume 12, at step 66 of FIG. 9 as previously discussed, this generation is interactive and proceeds until user 16 is satisfied with the results. In this embodiment however, the resume generation process can either be carried out using another word processor or through the supplied software 69 itself.

As a next step, the user 16 requests a first web page form and the associated software 69 (step 68) via the Internet 46 to begin the process of interactively transferring the resume 12 to the database 14. The first web page form 68 (see FIG. 6A) and the associated software 69 is stored (see block 70) within computer 64 at the database service provider site 42, and is responsively provided back (see step 72) to the user site 38 via the Internet 46 (commencing STEP ONE), and displayed by the web browser 50 on the monitor 56.

The user 16 then preferably provides the existing resume 12 into the software 69 either by entering it directly or via a pasting operation used in conjunction with the web browser 50.

Next, STEP TWO of the process commences by the software on the user's computer 40 which generates a second form 78 (see FIG. 6B) at step 80 which is displayed on the monitor 56 at the user site 38. In this example, the second form 78 is a supplemental inquiry form, that asks the user 16 one or more supplemental questions. The number of supplemental questions can vary depending on the contents of the resume 12. In response, the user 16 fills in supplemental fields 82, e.g., by a pull-down field, free text entry, a radio selection, etc. This filled-in form is submitted to the software 69 in step 84 where the supplemental text strings 86 are stored by the software 69 to some type of recordable media as supplemental text storage 88.

STEP THREE of the process commences by the software 69 on the user's computer 40 generating a third form 92 (see FIG. 6C), a structured form having multiple fields 94, each field being capable of accommodating a text string within. Specifically, target text strings 32 (corresponding to source text strings 24) are inserted within fields 94 according to the syntax of the source document/file 12 and the definition (e.g., name, address, city, etc.) of each field 94. Additionally, the supplemental text strings 86 are inserted within the associated fields 94 of form 92. Preferably, the stored resume 12' from resume storage 74 is also added to the third form 92. The third web page form 92 is displayed by the web browser 50 on monitor 56.

The user 16 can now use the software 69 to view the displayed form 92 to determine its accuracy. If the displayed data, including target text strings 32 and supplemental text strings 86 are accurate, the user 16 sends back form 92 using

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the software to the database service provider site 42 via the Internet, where the accepted text strings are extracted in block 98 and stored in database 14. However, as previously discussed, the displayed data is not always accurate.

Accordingly, the user 16 can edit data supplied in the third form 92 (preferably including using the supplied resume 12) to cause the fields 94 of form 92 to more accurately represent the applicant's resume information. Using features of the web browser 50, the user 16 can in step 100 edit fields 94 and/or paste information from resume 12' (now part of form 92) to modify the data fields 94. The user in step 102 then uses their browser to send the modified form 92 back to the database service provider site 42 using the software where accepted text strings 104 from fields 94 are stored in the database 14 in step 98.

In another embodiment of the invention the text extractor, structured form generator, supplemental question page generator, and structured form editor is supplied to the user's computer as self executing piece of software 69 by the database service provider. In this embodiment the user would not need to have an Internet connection at all. The user contacts the database service provider using for example e-mail, telephone or traditional mail requesting the software 69. The software 69 is sent to the user on portable storage media through traditional mail and is executable as a stand alone program on the user's computer 40.

The functionality is similar to the above embodiments except that once the process is complete the user is prompted to save the completed resume 12 to portable storage media. The user then sends the storage media to the database service provider using traditional mail. Once received, the database service provider takes the resume 12 off of the portable storage media and places the resume contents into the database 14.

Although the present invention has been described in detail with reference only to the presently-preferred embodiments, those of ordinary skill in the art will appreciate that various modifications can be made without departing from the invention. For example, while a job search environment has been primarily described, the present invention can be useful in other environments where the source document is essentially unstructured relative to a highly structured database. Accordingly, the invention is defined by the following claims.

What is claimed is:

1. A method for facilitating the accurate transfer of information to a structured database, said method comprising the steps of:

receiving digital data from one or more users representing one or more nonuniformly formatted source data streams, each said source data stream containing digital data corresponding to one or more discernible source data strings, wherein said digital data includes first digital data that is personal information about a first user;

extracting selected ones of said source data strings from said source data streams and generating related target data strings;

sending a structured form to said first user comprised of multiple fields, each field being capable of accommodating a data string and wherein any said generated target data strings are inserted;

enabling said first user to modify and/or accept said target data strings inserted within said structured form;

receiving digital data from said first user corresponding to said target data strings from said structured form fields; and

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storing said digital data corresponding to said target data strings from said structured form fields in said database.

2. The method of claim 1 wherein said sending and receiving steps use a remote communication interface

3. The method of claim 2 wherein said remote communication interface uses the Internet

4. The method of claim 1 wherein said structured form additionally comprises said source data stream and said enabling step includes enabling said first user to copy selected portions of said source data stream into selected fields of said structured form.

5. The method of claim 1 wherein one or more of said target strings are essentially equivalent to said extracted source data strings.

6. The method of claim 1 additionally comprising the step of: receiving one or more supplemental data strings in response to one or more supplemental inquiry forms; and wherein

said structured form additionally comprises fields having said supplemental data strings inserted within

7. A system for facilitating the accurate transfer of information to a structured database, said system comprising:

means for receiving digital data from one or more users representing one or more nonuniformly formatted source data streams, each said source data stream containing data corresponding to one or more discernible source data strings, the said digital data including at least first digital data generated by and received from a first user;

data extraction means for extracting selected ones of said source data strings from said source data streams and generating related target data strings;

means for generating a structured form comprised of multiple fields, each field capable of accommodating a data string and wherein any said generated target data strings are inserted;

means for sending said structured form to said first user;

means for enabling said first user to modify said target data strings inserted within said structured form;

means for receiving digital data corresponding to said target data strings from said structured form fields; and means for storing data corresponding to said target data strings from said structured form fields in said database

8. The system of claim 7 wherein said means for receiving said digital data comprises each said user sending said digital data via a remote communication interface.

9. The system of claim 8 wherein said remote communication interface uses the Internet.

10. The system of claim 7 wherein said means for sending said structured form additionally comprises means for returning said structured form via a remote communication interface

11. The system of claim 10 wherein said remote communication interface uses the Internet.

12. The system of claim 7 wherein said means for enabling includes means for enabling each said user to copy selected portions of said source data stream into selected fields of said structured form.

13. The system of claim 7 wherein one or more of said target strings are essentially equivalent to said extracted source data strings

14. The system of claim 7 additionally comprising:

means for receiving one or more supplemental data strings in response to a supplemental inquiry form; and wherein

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said structured form additionally comprises fields having said supplemental data strings inserted within

15. A system for facilitating the transfer of information, said system comprising:

a communication interface for receiving from each of one or more user sites one or more nonuniformly formatted source data streams, each containing data corresponding to discernible source data strings received from a respective user who generated a respective source data stream;

a data extractor for extracting selected source data strings from said source data streams and generating related target data strings and for returning said target data strings to said user sites;

a generating apparatus for generating a structured form comprised of multiple fields, each field capable of accommodating a data string and wherein one or more of said fields have said target data strings inserted within;

a data entry apparatus for enabling each respective user to alter said fields of said structured form corresponding to said respective source data stream originating from said respective user before accepting said structured form; and

a database for storing data corresponding to said data strings from said structured form fields.

16. The system of claim 15 wherein said communication interface uses the Internet

17. The system of claim 15 wherein said structured form comprises said respective source data stream and said data entry apparatus enables said respective user to copy selected portions of said respective source data stream into selected fields of said structured form.

18. The system of claim 17 wherein said data extraction apparatus additionally returns said respective source data stream to its corresponding user who generated said respective source data stream.

19. The system of claim 15 wherein one or more of said target data strings are essentially equivalent to said extracted source data strings.

20. The system of claim 15 additionally comprising:

means for receiving one or more supplemental data strings in response to one or more supplemental inquiry forms; and wherein

said structured form additionally comprises fields having said supplemental data strings inserted within.

21. A method for facilitating the accurate transfer of resume information from a nonuniformly formatted source data stream to a structured database, said method comprising the steps of:

receiving a digital representation of a resume from a first job applicant;

extracting data strings from said digital representation and generating related target data strings;

sending at least a portion of said target data strings to said first job applicant; and

enabling said first job applicant to modify said target data strings to create modified data strings;

receiving said modified data strings from said first job applicant; and

storing said modified data strings in the database

22. The method of claim 21, wherein the sending and receiving steps use a remote communication interface

23. The method of claim 22, wherein the remote communication interface uses the internet.



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24. The method of claim 21, wherein said target data strings are inserted into a structured form.

25. The method of claim 24, wherein the step of enabling includes a step of enabling said first job applicant to modify the said target data strings that are inserted into the structured form.

26. The method of claim 24, wherein the structured form includes multiple fields, each field being capable of accommodating at least one of said target data strings.

27. The method of claim 24, further comprising the step of enabling said first job applicant to accept said target data strings that are inserted into the structured form.

28. The method of claim 21, further comprising the step of enabling said first job applicant to accept said target data strings.

29. A method of transferring information from nonuniformly formatted source data streams to a structured database, said method comprising the steps of:

receiving digital data from at least one user, the data including personal information about the at least one user;

processing the data received from the at least one user and generating a target data string therefrom;

sending a representation of the target data string to the at least one user, enabling the at least one user to modify the target data string;

receiving from the at least one user the modified target data string; and

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storing the modified data string in the structured database.

30. The method of claim 29, wherein the representation of the target data string is a structured form.

31. The method of claim 30, wherein the structured form includes multiple fields, and wherein at least one of the multiple fields is capable of accommodating the target data string.

32. The method of claim 29, wherein the step of processing generates multiple target data strings.

33. The method of claim 32, wherein the step of sending includes a step of sending a structured form that includes multiple fields, each of which are capable of accepting a data string and which have target data strings inserted therein.

34. The method of claim 33, wherein the step of receiving from the at least one user the modified target data string includes a step of receiving at least one additional target data string in addition to the modified target data string, and wherein the step of storing includes a step of storing the at least one additional target data string and the modified target data string in the structured database.

35. The method of claim 29, wherein the sending and receiving steps use a remote communication interface.

36. The method of claim 29, wherein the remote communication interface uses the internet.

\* \* \* \* \*



JS 44 (Rev 12/07)

## CIVIL COVER SHEET

The JS 44 civil cover sheet and the information contained herein neither replace nor supplement the filing and service of pleadings or other papers as required by law, except as provided by local rules of court. This form, approved by the Judicial Conference of the United States in September 1974, is required for the use of the Clerk of Court for the purpose of initiating the civil docket sheet. (SEE INSTRUCTIONS ON THE REVERSE OF THE FORM.)

## I. (a) PLAINTIFFS

Kenexa BrassRing, Inc.

## DEFENDANTS

Vurv Technology, Inc.

(b) County of Residence of First Listed Plaintiff \_\_\_\_\_  
(EXCEPT IN U.S. PLAINTIFF CASES)

County of Residence of First Listed Defendant \_\_\_\_\_  
(IN U.S. PLAINTIFF CASES ONLY)

NOTE: IN LAND CONDEMNATION CASES, USE THE LOCATION OF THE  
LAND INVOLVED

(c) Attorney's (Firm Name, Address, and Telephone Number)  
see attachment

Attorneys (If Known)

## II. BASIS OF JURISDICTION (Place an "X" in One Box Only)

- ☐ 1 U.S. Government Plaintiff
- ☒ 3 Federal Question (U.S. Government Not a Party)
- ☐ 2 U.S. Government Defendant
- ☐ 4 Diversity (Indicate Citizenship of Parties in Item III)

## III. CITIZENSHIP OF PRINCIPAL PARTIES (Place an "X" in One Box for Plaintiff and One Box for Defendant)

- |   |                            |                            |   |                            |                            |
|---|----------------------------|----------------------------|---|----------------------------|----------------------------|
|   | PTF                        | DEF                        |   | PTF                        | DEF                        |
| Citizen of This State                   | <input type="checkbox"/> 1 | <input type="checkbox"/> 1 | Incorporated or Principal Place of Business In This State     | <input type="checkbox"/> 4 | <input type="checkbox"/> 4 |
| Citizen of Another State                | <input type="checkbox"/> 2 | <input type="checkbox"/> 2 | Incorporated and Principal Place of Business In Another State | <input type="checkbox"/> 5 | <input type="checkbox"/> 5 |
| Citizen or Subject of a Foreign Country | <input type="checkbox"/> 3 | <input type="checkbox"/> 3 | Foreign Nation  | <input type="checkbox"/> 6 | <input type="checkbox"/> 6 |

## IV. NATURE OF SUIT (Place an "X" in One Box Only)

CONTRACT	TORTS	FORFEITURE/PENALTY	BANKRUPTCY	OTHER STATUTES	
<input type="checkbox"/> 110 Insurance <input type="checkbox"/> 120 Marine <input type="checkbox"/> 130 Miller Act <input type="checkbox"/> 140 Negotiable Instrument <input type="checkbox"/> 150 Recovery of Overpayment & Enforcement of Judgment <input type="checkbox"/> 151 Medicare Act <input type="checkbox"/> 152 Recovery of Defaulted Student Loans (Excl. Veterans) <input type="checkbox"/> 153 Recovery of Overpayment of Veteran's Benefits <input type="checkbox"/> 160 Stockholders' Suits <input type="checkbox"/> 190 Other Contract <input type="checkbox"/> 195 Contract Product Liability <input type="checkbox"/> 196 Franchise	<b>PERSONAL INJURY</b> <input type="checkbox"/> 310 Airplane <input type="checkbox"/> 315 Airplane Product Liability <input type="checkbox"/> 320 Assault, Libel & Slander <input type="checkbox"/> 330 Federal Employers' Liability <input type="checkbox"/> 340 Marine <input type="checkbox"/> 345 Marine Product Liability <input type="checkbox"/> 350 Motor Vehicle <input type="checkbox"/> 355 Motor Vehicle Product Liability <input type="checkbox"/> 360 Other Personal Injury	<b>PERSONAL INJURY</b> <input type="checkbox"/> 362 Personal Injury - Med Malpractice <input type="checkbox"/> 365 Personal Injury - Product Liability <input type="checkbox"/> 368 Asbestos Personal Injury Product Liability <b>PERSONAL PROPERTY</b> <input type="checkbox"/> 370 Other Fraud <input type="checkbox"/> 371 Truth in Lending <input type="checkbox"/> 380 Other Personal Property Damage <input type="checkbox"/> 385 Property Damage Product Liability	<input type="checkbox"/> 610 Agriculture <input type="checkbox"/> 620 Other Food & Drug <input type="checkbox"/> 625 Drug Related Seizure of Property 21 USC 881 <input type="checkbox"/> 630 Liquor Laws <input type="checkbox"/> 640 R.R. & Truck <input type="checkbox"/> 650 Airline Regs. <input type="checkbox"/> 660 Occupational Safety/Health <input type="checkbox"/> 690 Other <b>LABOR</b> <input type="checkbox"/> 710 Fair Labor Standards Act <input type="checkbox"/> 720 Labor/Mgmt Relations <input type="checkbox"/> 730 Labor/Mgmt Reporting & Disclosure Act <input type="checkbox"/> 740 Railway Labor Act <input type="checkbox"/> 790 Other Labor Litigation <input type="checkbox"/> 791 Empl. Ret. Inc. Security Act <b>IMMIGRATION</b> <input type="checkbox"/> 462 Naturalization Application <input type="checkbox"/> 463 Habeas Corpus - Alien Detainee <input type="checkbox"/> 465 Other Immigration Actions	<input type="checkbox"/> 422 Appeal 28 USC 158 <input type="checkbox"/> 423 Withdrawal 28 USC 157 <b>PROPERTY RIGHTS</b> <input type="checkbox"/> 820 Copyrights <input checked="" type="checkbox"/> 830 Patent <input type="checkbox"/> 840 Trademark <b>SOCIAL SECURITY</b> <input type="checkbox"/> 861 HIA (1395ff) <input type="checkbox"/> 862 Black Lung (923) <input type="checkbox"/> 863 DIWC/DIWW (405(p)) <input type="checkbox"/> 864 SSID Title XVI <input type="checkbox"/> 865 RSI (405(p)) <b>FEDERAL TAX SUITS</b> <input type="checkbox"/> 870 Taxes (U.S. Plaintiff or Defendant) <input type="checkbox"/> 871 IRS—Third Party 26 USC 7609	<input type="checkbox"/> 400 State Reapportionment <input type="checkbox"/> 410 Antitrust <input type="checkbox"/> 430 Banks and Banking <input type="checkbox"/> 450 Commerce <input type="checkbox"/> 460 Deportation <input type="checkbox"/> 470 Racketeer Influenced and Corrupt Organizations <input type="checkbox"/> 480 Consumer Credit <input type="checkbox"/> 490 Cable/Sat TV <input type="checkbox"/> 810 Selective Service <input type="checkbox"/> 850 Securities/Commodities/Exchange <input type="checkbox"/> 875 Customer Challenge 12 USC 3410 <input type="checkbox"/> 890 Other Statutory Actions <input type="checkbox"/> 891 Agricultural Acts <input type="checkbox"/> 892 Economic Stabilization Act <input type="checkbox"/> 893 Environmental Matters <input type="checkbox"/> 894 Energy Allocation Act <input type="checkbox"/> 895 Freedom of Information Act <input type="checkbox"/> 900 Appeal of Fee Determination Under Equal Access to Justice <input type="checkbox"/> 950 Constitutionality of State Statutes

## V. ORIGIN

(Place an "X" in One Box Only)

- ☒ 1 Original Proceeding
- ☐ 2 Removed from State Court
- ☐ 3 Remanded from Appellate Court
- ☐ 4 Reinstated or Reopened
- ☐ 5 Transferred from another district (specify)
- ☐ 6 Multidistrict Litigation
- ☐ 7 Appeal to District Judge from Magistrate Judgment

## VI. CAUSE OF ACTION

Cite the U.S. Civil Statute under which you are filing (Do not cite jurisdictional statutes unless diversity):  
35 U.S.C. § 271 et seq.

Brief description of cause:

Action for patent infringement and injunctive relief

## VII. REQUESTED IN COMPLAINT:

☐ CHECK IF THIS IS A CLASS ACTION UNDER F.R.C.P. 23

DEMAND \$

CHECK YES only if demanded in complaint:

JURY DEMAND:

☒ Yes ☐ No

## VIII. RELATED CASE(S) IF ANY

(See instructions):

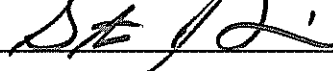
JUDGE Robinson

DOCKET NUMBER 07-521

DATE

05/09/2008

SIGNATURE OF ATTORNEY OF RECORD



FOR OFFICE USE ONLY

RECEIPT #

AMOUNT

APPLYING IFP

JUDGE

MAG JUDGE

**Civil Cover Sheet - Attachment**

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